PULP & PAPER

MAY 1956 – 30th Year

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Power Generation in South
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For Woods Men—Rainmaking
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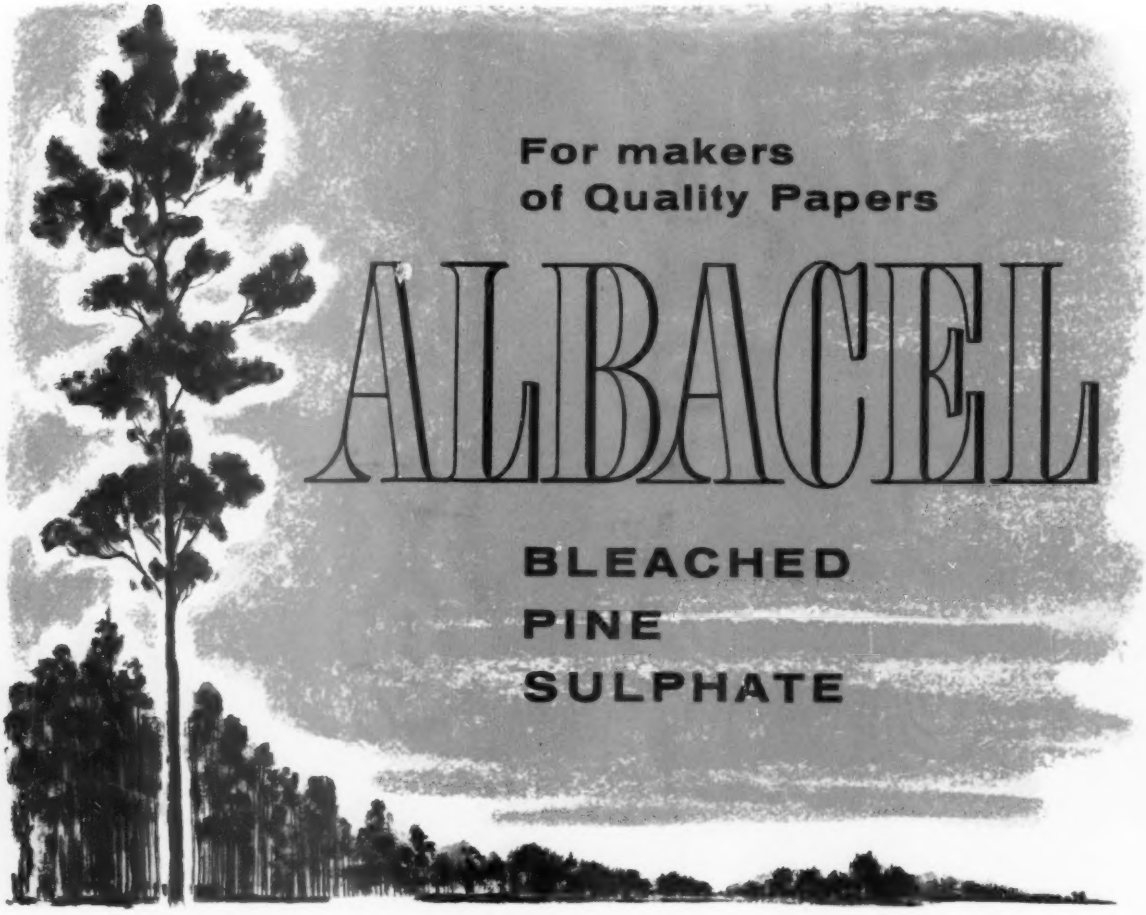
New Neutracel pulping process
extends horizons for Hammermill



Created by Papermakers for Papermakers

Albacel is bleached pine sulphate . . . the cleanest pulp of its kind available from any source. Chlorine dioxide bleaching gives it outstanding strength and excellent brightness. Albacel is produced at Riegel Carolina's pulp mill at Riegelwood, N. C., with every refinement and control known to modern pulp manufacture.

Riegel Carolina Pulps

ALBACEL · ASTRACEL

RIEGEL PAPER CORPORATION • 260 MADISON AVENUE • NEW YORK 16, N. Y.

HIGH SPEED
LOW SPEED . . .

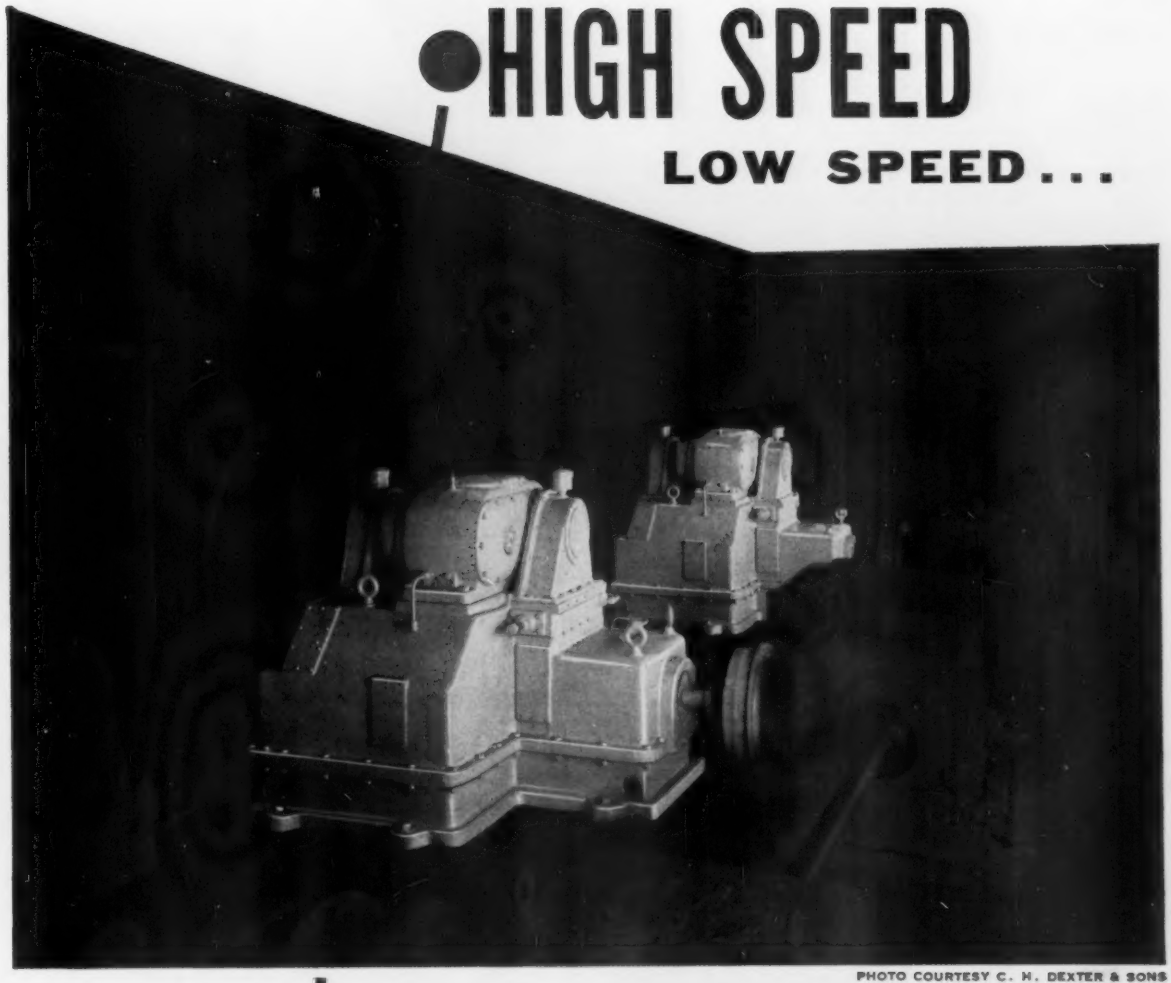


PHOTO COURTESY C. H. DEXTER & SONS

The Rice Barton Differential Drive

provides precise and instantaneous draw control through the complete range of papermaking speeds.

When a section is shut down, its drive unit is idle, since the unit is separated from the line shaft by its clutch.

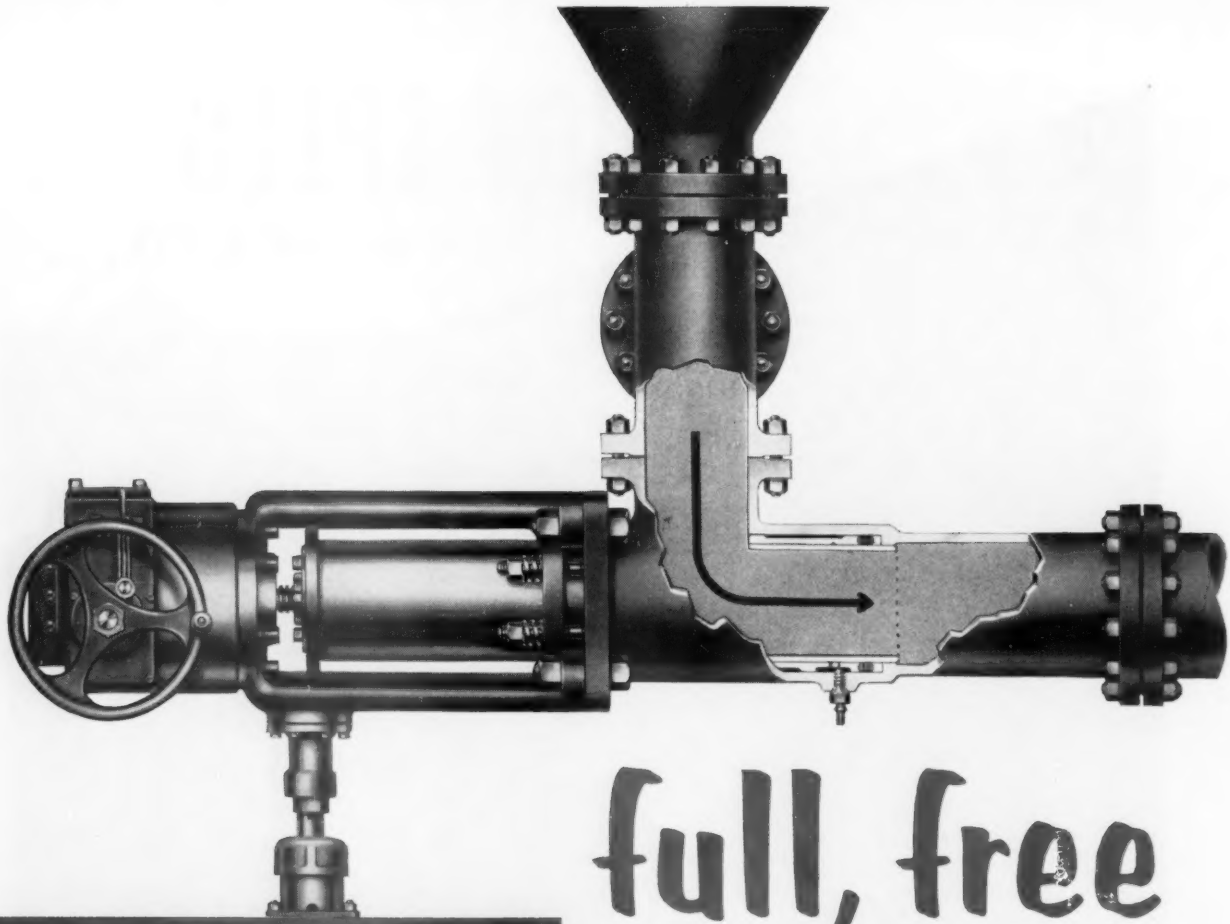
This unique feature, plus continuous indication of available draw, and automatic return to pre-set draw after slack take-up makes the Rice Barton Differential Drive the perfect drive for the papermaker.

RICE BARTON CORPORATION

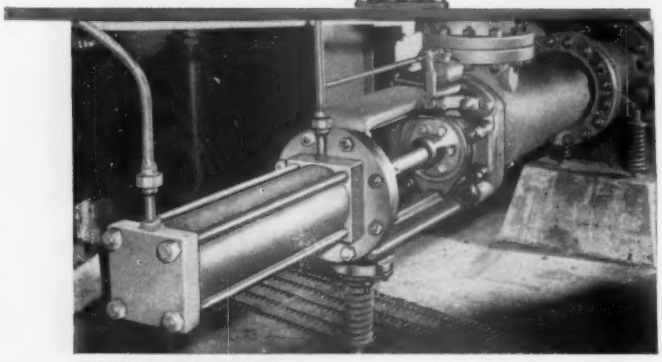
Worcester, Massachusetts

Paper Machine Builders Since 1837

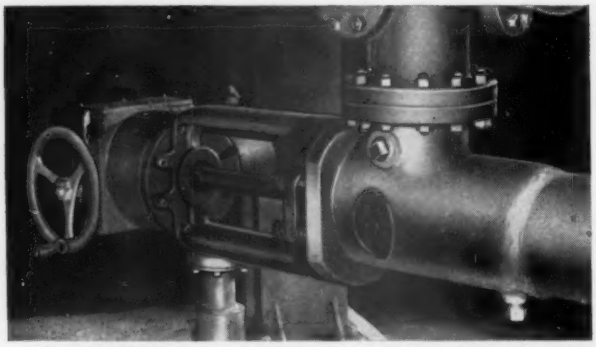
West Coast Distributor: **Ray Smythe** . . 501 Park Building • Portland, Oregon



full, free digester discharge



HYDRAULIC-OPERATED Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.



MOTOR-OPERATED Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.

Digesters blow fast and clean with YARWAY Seatless Blow Valves.

The hollow sliding plunger of the valve has no pockets where wood chips or tramp materials can hang up.

Full pipe area permits fast discharge with minimum pressure drop.

Scores of pulp mills report *lower operating costs* and *increased production* due to YARWAY Digester Blow Valves. One large mill found *savings in operation and maintenance the first year more than paid the cost of their 4 new Digester Valves!*

YARWAY Seatless Digester Valves can be furnished either with electric motor or hydraulic cylinder units. Both are remote controlled. Bulletin B-441 gives the whole story. Write for it.

YARNALL-WARING COMPANY
103 Mermaid Avenue, Philadelphia 19, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY · · DIGESTER BLOW VALVES

PULP & PAPER

May 1956

VOLUME 30
NUMBER 5

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Bienniel Census; Tiger by the Tail

THIS MAN SERVES MANY MASTERS

WHO IS HE? He's a Buckeye Customer Service man—paid by Buckeye to help you, our customers, get the most from cellulose. Familiar with every phase of cellulose chemistry, he is equipped to work closely with your technical people . . . is always available to see that there is a Buckeye cellulose that meets your requirements *exactly*.

And Buckeye Customer Service is backed up by Buckeye Research —extensive laboratories . . . specialized testing equipment . . . pilot plants that simulate actual production conditions. Teamwork between customers and Buckeye has resulted—and will continue to result in—new developments, new uses for cellulose!

BUCKEYE

Buckeye Cellulose Corporation, Memphis 8, Tenn.

PULP & PAPER EDITOR READS HIS MAIL

PAPER WEEK Should Be National

Worcester 1, Mass.

Editor: PAPER WEEK should be National, as you are saying in PULP & PAPER (referring to lead editorial, Feb. 1956, and previous editorials in 1955). Your point that the Mayor of New York's proclamation of a Paper Week for all New York City, which was concurrent with the industry meetings there, may be the first step toward a National PAPER WEEK is well taken.

W. E. BRIGHT,
Asst. to President, Rice Barton Corp.

Eds. note—The mayor of Los Angeles also proclaimed a PAPER WEEK in that area last fall, to help along the annual Hi-Jinx of paper industry men there. P & P's Feb. editorial was shown Mayor Wagner of New York, and he agreed to proclaim a New York City PAPER WEEK.

Growth Involves Chemicals

Los Angeles, Calif.

Editor: The new chemical news section in PULP & PAPER is excellent, particularly with the rapid growth that seems to lie ahead in the pulp and paper field, and all of which involves in some manner the use of various chemicals.

WM. J. F. FRANCIS
Vice Pres-Sales, American Potash & Chemical Corp.

Menlo Park, N. J.

Editor: The pulp and paper industry is becoming more and more related to the chemical industry and I think your chemicals section is serving a very good purpose.

ROBERT W. WILKERSON
Adv.-Pub. Relations Mgr., Minerals & Chemicals Corp. of America

"By Far the Best"

Kapuskasing, Ont.

Editor:

I have been a constant subscriber to PULP & PAPER almost since the day it was first launched and rate it by far the best magazine in the industry.

ANDREAS CHRISTENSEN
Production Mgr., Spruce Falls Power & Paper Co.

Important to Wisconsin Mills

Chicago, Ill.

Editor: Here is a letter from Mr. Fred Peronto, secretary, Operations and Maintenance Dept., Association of American Railroads, concerning adoption of a rule to govern the loading of unpeeled pulpwood:

"For some time past, the Special Committee on Forest Products Loading of our Association have been giving consideration to the adoption of a standard method of loading unpeeled pulpwood in bulk, crosswise of car, with unit tied packages at top of load in gondola cars. At the present time there is no figure contained in Pamphlet MD-3 to cover pulpwood other than peeled.

"It has always been our practice to submit any proposed new methods to the Wisconsin industry's Traffic Association for handling with the shippers prior to including the method in the published rules, to determine whether or not there are any objections to the proposed method."

It is my understanding that the proposed rule, if adopted, would become the standard method to be observed in the loading of all unpeeled pulpwood that is loaded above the top sides of gondola cars.

It is my understanding that shipments of unpeeled wood that are transported over routes over which high-speed passenger trains are operated that such shipments are currently wired in much the same manner as is observed in connection with shipments of peeled wood.

J. E. HART
Wisconsin Pulp & Paper Mfrs. Traffic Assn.

"Shipping World" Interested

New York

Editor: Your recent article on how "noodle pulp" is being shipped in tankers from pulp mills to converters or paper mills is interesting in regard to the type of woodpulp tanker. I am forwarding it directly to the Editor of **The Shipping World** in London. Should we receive any inquiries or comments, I shall certainly get in touch with you.

C. BRADFORD MITCHELL
American Merchant Marine Institute Inc.

American-French Relations

Editor:

Paris.

"PULP & PAPER" magazine is very popular in our American Library in Grenoble. It will interest you to know our headquarters in Paris now has over 4,000 members, thus contributing largely to closer relationships between your country and France.

HENRI JEGU
Vice President
American Library in Paris.

(Eds. note—As many readers know, one of the famous universities of Europe is at Grenoble. PULP & PAPER also goes to the Library in Paris.)

More Praise for Holyoke Series

Holyoke, Mass.

Editor: We have now received a third copy of PULP & PAPER with its wonderful special series of articles on Holyoke. May I congratulate you on the fine job you have done in telling the Holyoke story as it pertains particularly to the paper and paper converting industries.

ROBERT E. BARRETT Jr.
President, Holyoke Water Power & Paper Co.

Papermaker's Drink-Getter

Espanola, Ont.

Editor: A papermaker need never be at a loss for a drink, if he remembers that his product is the most wonderful man-made material in the world. For instance, he can bet an acquaintance a beer that he can balance a book of several pounds weight on the edge of a sheet of paper—and win! Try it before looking below.

The sheet of paper is first rolled into a cylinder, when it will support a surprising weight. Try and get a stiff-covered book, and practice first.

F. P. HUGHES

HERE'S HOW to address your letter to this department:

No anonymous letters will be considered but names may be withheld if desired.

The Editor
PULP & PAPER
1791 Howard Street
Chicago 26, Illinois

STRICTLY PERSONAL

Notes from Northeast

JAMES L. MADDEN, vice president, Scott Paper Co., recently took a ski vacation in Switzerland. A former neighbor, (when he was president of Hollingsworth & Whitney) was there too, **ROGER MERRILL, JR.,** treasurer of Atkins & Merrill, Inc., who told P&P that the Swiss resort resembled a convention of NAM members. Mr. Merrill's firm makes dioramic plastic models such as the one used in constructing Hammermill's Neutracel plant. . . . **T. RICHARD PROBST,** vice president and manager of mills for Eastern Corp. (they've just announced a new $10 million kraft mill at Lincoln, Me.) says that **GEORGE G. MARSANSKIS** is now supt. of making department; **PAUL I. COUGHLIN,** asst. supt. and **PETER WILLETT,** supervisor of the beater room. These changes are at the Brewer paper mill, headed by **DONALD W. DANFORTH,** general supt. . . . **HOLGER PETERSEN** is manager of National Gypsum Co's. new Burlington, N. J. gypsum plant. **HAROLD E. BEARD** succeeds him as manager of the Baltimore plant. . . . **T. H. MITTENDORF,** vice president in charge of sales, Hudson P&P Corp., is now executive vice president. He's a native of Oklahoma and a graduate of Oklahoma A&M College and began his paper industry career as director of sales 34 years ago for Mid-States Gummed Paper Co.

DENNIS E. COUSINS, in connection with Scott's $20 million construction program at Mobile, will reduce interruptions of production operations to a minimum during the construction. **JOHN J. INCH,** traffic consultant at Scott has retired after 47 years with Scott. . . . **GEORGE A. RICHTER,** supt. of wood cellulose development division at Kodak Park for Eastman Kodak Co., has retired. This veteran researcher, with some 400 patents in his field, was formerly director of research and development at Brown Co., Berlin, N. H. In June he will lecture at the Forest Products Lab in Madison, Wis., and also before a meeting of the Canadian P&P Assn. . . . **CARL J. MALM,** superintendent of Eastman cellulose acetate development division, takes on job of supt. of wood cellulose development division.

"DUTCH" KLAHOLD, formerly general supt., Yorktowne Paper Mills, Inc. and recently supt. at Atlas Paper Board Co., Inc., Long Island City, is now supt. at Federal Paper Board Co's. Reading mill. **CHARLIE SHARP,** formerly supt. at Federal, is now with Atlas . . . **MR. & MRS. ED MANOGUE** (he's vice pres. and supt. at Gibraltar Corrugated Paper Co.,) recently vacationed in South America. . . . **JAMES A. LEROY,** vice president, McLaurin-Jones Co., recently died in Coral Gables, Fla. He joined the company in 1934 as purchasing agent. . . . **MR. & MRS. ROBERT KRAIMAN** (he's quality control asst. at W. C. Hamilton & Sons, Inc.) have a new exemption, **MARIA SUE.** . . . **MR. & MRS. GEORGE BOGER** (chemist at Paper Products Mfg. Co.) have a seventh, John Thomas.

FRANK E. WINSLOW, manager of GE's Baltimore office, retired after 40 years of service to the P&P industry. . . . **DEAN J. KUTCHERA,** Rayonier Inc., is now in Osaka, Japan, as assistant Far East rep, reporting to **BOB PLUMMER.** Mr. Kutchera was formerly with Commercial Solvents Corp. before joining Rayonier in Jan. 1955. He attended U. of Wisconsin and Dartmouth, where he got his ba. . . . **HO KWANK KIM,** one of two Korean engineers in the U. S. under the Technical Cooperation Administration, is spending 6 months at Gould Paper Co. at Lyons Falls, N. Y. He is director and general supt. of Korea Paper Mfg. Co., Ltd. . . . **HENRY B. (MAC) McALLISTER,** formerly with Dunn Paper Co., has joined Gould. He was born in Ticonderoga of a papermaking family and has worked for Ticonderoga Paper Co., Central Paper Co. and Chase Bag Co. His hobbies are baseball, fishing and antique furniture.

GORDON W. ATWATER has joined Ebasco Services Inc. as a senior consultant in the space planning dept. . . . **JAMES J. MELEAD** has been promoted to asst. chief engr. of Dilts, converting equipment div. of Black-Clawson Co. at Fulton, N.Y. . . . **BERNARD MAJANI,** a native of Trinidad, B.W.I., has joined Dilts' sales staff. He's a grad of U. of Toulouse, France, studied at Paper Making School, Three Rivers, Que., and also graduated from U. of Maine in 1954 with a bs in pulp and paper technology. He returned later to receive a master's in chem. e. . . . **BALFOUR CLARK,** former estimating engineer at B-C's paper machine div. at Watertown, N.Y., has been appointed sales engineer at Fulton. He was with Bagley & Sewall since 1937. . . . **GEORGE A. LEAR,** pres. of Moore & White Co., on an extended business-pleasure trip in Europe, was spending March in Spain and Italy. . . . **PAUL L. POOLER,** 34-year veteran with Eastern Corp., has been named to new post of supervisor of finishing operations, according to **T. RICHARD PROBST,** vice pres. and manager of mills. . . . **IRVING F. GRANT** has been promoted to supt. of IP's Hudson River Mill's electrical department with **CARL FOLTS** as his assistant. Mr. Grant's hobby is photography.

Heads Paper Clays Div.; Is Cellulose Research Exec.

ROBERT J. CASEY (left) is Div. Mgr. of Paper Clays Div., Industrial Prods. Dept., of J. M. Huber Corp., it is announced by Vice Pres. R. H. Eagles. Mr. Casey will be in charge of sales of coating and filler clays and other pigments to paper mills throughout U.S.A. and Canada. His Asst. Div. Mgrs. will be A. L. Fuller and C. A. Raby. Mr. Casey has been with Huber since 1950 as a Tech. Sales Rep and Asst. Div. Mgr. Prior to that he was with American Coating Mills, Hercules Powder, and is a graduate (1942) of Syracuse U.

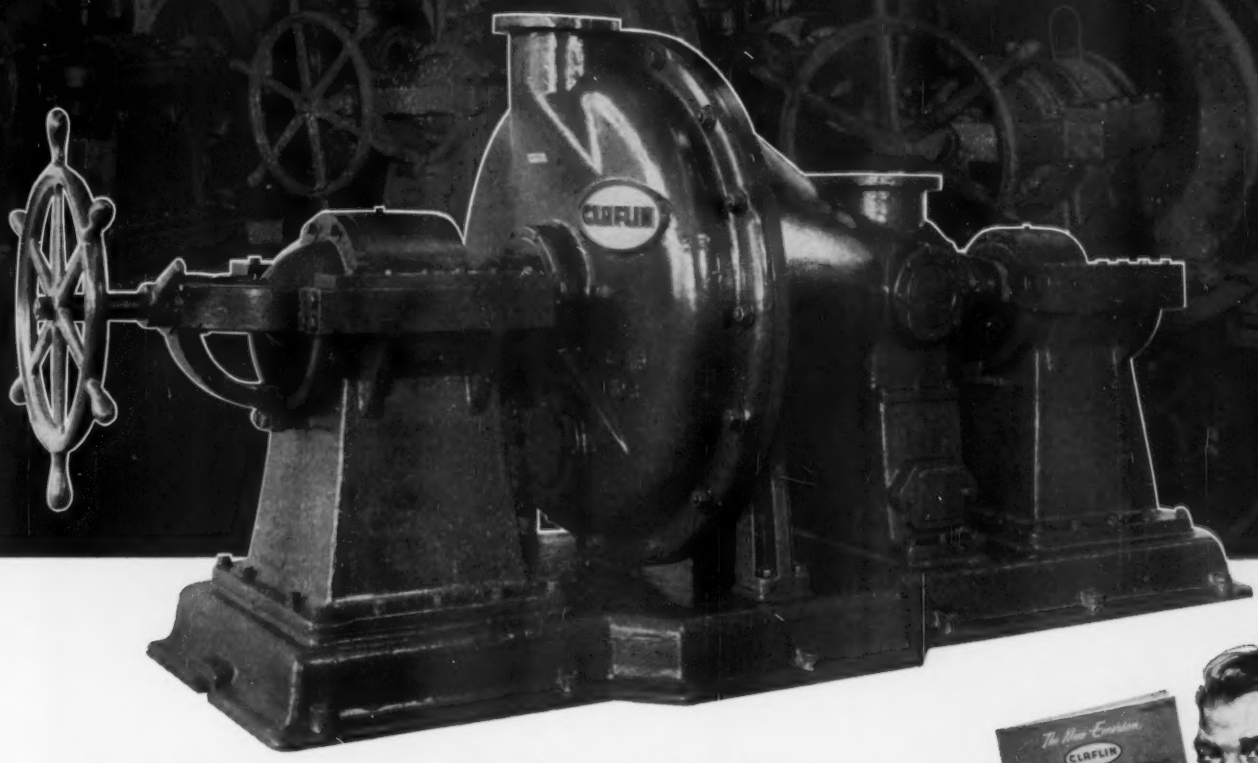
HENRY E. MAHNCKE (right) is Asst. Mgr. at Rayonier's new Eastern Research Div. at Whippany, N. J., announces Dr. Arthur N. Parrett, Vice Pres. i/c Research and Development. For 12 years Dr. Mahncke had been Mgr. of the Physical Chemistry Section at Westinghouse Research in Pittsburgh, Pa. Currently he is recruiting personnel for Rayonier's newest research facility. A native of Puyallup, Wash., he received his bs and ms at Wash. State College, ph.d. from Brown U.

Midwest Medley

MARVIN JONES, Lockport Felt rep. in the Midwest, and wife, Martha, were in Chicago area for a recent weekend for the wedding of their daughter on the Chicago North Shore. Their home is Battle Creek, Mich. . . . **JAMES HILLMAN** has replaced **ROGER L. BARKER** as American Cyanamid's paper makers' chemicals rep in Kalamazoo, reporting to **GEORGE FROMM,** regional manager in Chicago. Mr. Barker was transferred to Portland, Ore. . . . **EWALD N. PETERSON** has been appointed plant manager of the new Fort Madison, Ia., semi-chemical woodpulp and paperboard mill of Crandon Enterprises, Inc. He was born in Little Falls, Minn., where one of his earliest jobs was with Hennepin Paper Co. Prior to his new assignment, he was plant man-

Continued on page 10

The Trend is Emerson CLAFLIN for Continuous Beating and Refining



More and more papermakers are discovering how EMERSON CLAFLINS are serving wide varieties of individual stock preparation requirements. Notable among the successful performances of this *most versatile of all refiners are:*

Pre-refining of .009 semi-chemical corrugating.
Continuous beating of Kraft, sulphite, mixed furnish and cotton linters.
One pass pre-beating of soda, sulphite and Kraft pulps.
De-fibering in pulp mills in the "High Yield Process."
Extreme fibrillation of glassine, greaseproof and waxing grades.

Many mills are operating EMERSON CLAFLINS on facial, tissue and napkin grades, Bagasse, straw, screenings, chip, filler, multiwall, asphalting, cement, bleached board, Kraft bag — in fact, *on all grades and types of stock* — brushing, hydrating or fibrillating.

For detailed information send today for Bulletin No. C-7555.

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STRICTLY PERSONAL

. . . more Midwest Medley

ager for Black-Clawson Co., Watertown, N. Y. . . . **ROBERT L. HALL, JR.,** has been appointed a wire and cable specialist for General Electric's Construction Materials Mid States district. A graduate of South Dakota School of Mines and Technology, he came to GE in 1949. His new office is at 215 W. 3rd St., Cincinnati.

DEL STARK, asst. supt., manufacturing, for Kimberly-Clark's Lakeview division, recently celebrated his 35th anniversary with K-C. . . . **CHESTER SCHRAM,** engineering dept. Chillicothe Div., Mead Corp., has been named president of the Supervisor's Club. . . . **GEORGE H. PRINGLE,** Mead Corp. vice pres., was speaker at a recent Chillicothe safety recognition dinner. . . . **PALMER DOLPH,** dir. of labor relations, Ohio Boxboard, was reported in "very favorable" condition following a recent heart attack. . . . **GERARD E. VENEMAN,** vice pres. and dir. of sales, Nekoosa-Edwards Paper Co., has been appointed a director of that company. He has been with Nekoosa since 1949. . . . **JOHN K. TRUITT** is new director of traffic for Champion Paper & Fibre. **HARRY T. RATLIFF** was named honorary director having completed 60 years with Champion. . . . **CHARLES H. WORCESTER,** long-time lumber and paper financier, died Mar. 24 at the age of 91. He was former pres. and treas. of Munising Paper Co., Munising, Mich., and later chairman. . . .

RALPH W. WEHMHOFF of St. Regis Paper Co., is a new resident of Park Forest, Ill., having transferred from Tacoma, Wash., to represent St. Regis pulp sales in the Midwest. He worked in the Tacoma, Wash., mill and attended College of Puget Sound. He reports to **BILL McNAIR,** now overall manager of St. Regis pulp sales, based in New York. . . . **CHESTER SCHRAM** is new president of Escanaba Paper Co.'s Supervisors Club.

JAMES H. (JOCK) SUTHERLAND has been appointed Midwestern regional sales manager of SKF Industries, Inc., manufacturers of ball and roller bearings. He succeeds Philip A. Carlson, who is retiring.

GRANT O. SHIBLEY, former director of safety for Ohio Boxboard Co., has been named staff rep for National Safety Council.

A. E. STALEY, JR., president of A. E. Staley Mfg. Co., says that **DR.**

Continued on page 14

New Posts in Middle West

FRANK S. WINSHIP (left), former Mill Engr. for Personal Products Corp., Milltown, N. J., is a new addition to F. C. Huyck & Sons' Field Service Engineering Staff, based in Wisconsin. He is a pulp and paper graduate of Syracuse U., also attended St. Lawrence U. as a member of the Navy, and took special studies at Rutgers. He was with Central Paper Co. and KVP Co. He is assigned to work with Philip E. Anderson, Huycks' Sales Engr. in Wis., Minn., upper Mich., and parts of Ill. and Iowa.

GENE H. LAVIOLETTE (right) is new Asst. Public Relations Mgr. of Charmin Paper Mills. A native of Green Bay, Wis., he is a St. Norbert College graduate. He will assist Ralph C. Pratt with public relations work.

THEN it's time to investigate SENTRY®—the first high speed, continuous moisture detector to utilize the dielectric property of paper in an entirely new electronic circuit—a circuit which produces a signal of greatly increased stability regardless of grade of paper. Used singly or in conjunction with an integrated control system, SENTRY provides the "missing link" in your quality control program. Full width scanning, of course. Write TODAY for literature. Laucks Laboratories, Inc., 1201 Poplar Place, Seattle 44, Washington.
SENTRYS *for Pulp, Paper, Softboard, Plywood, Lumber, Veneer.*

One of a series showing how Stowe-Woodward's better quality control results in better papermaking rolls.

Splitting the Bale at Dockside

to make BETTER RUBBER COVERED ROLLS

What pure alpha is to paper, 1X rubber is to papermaking rolls. So scarce is the supply of this high grade rubber that less than 2/10 of 1% of the world production can meet the specifications of Stowe-Woodward's dockside inspector who checks every shipment. This premium grade rubber is cleaner, stronger, and chemically purer. It is the starting point for the production of the highest quality rolls — rolls made by Stowe-Woodward to boost paper production for you.

"RUBBER ROLLS with a REPUTATION"

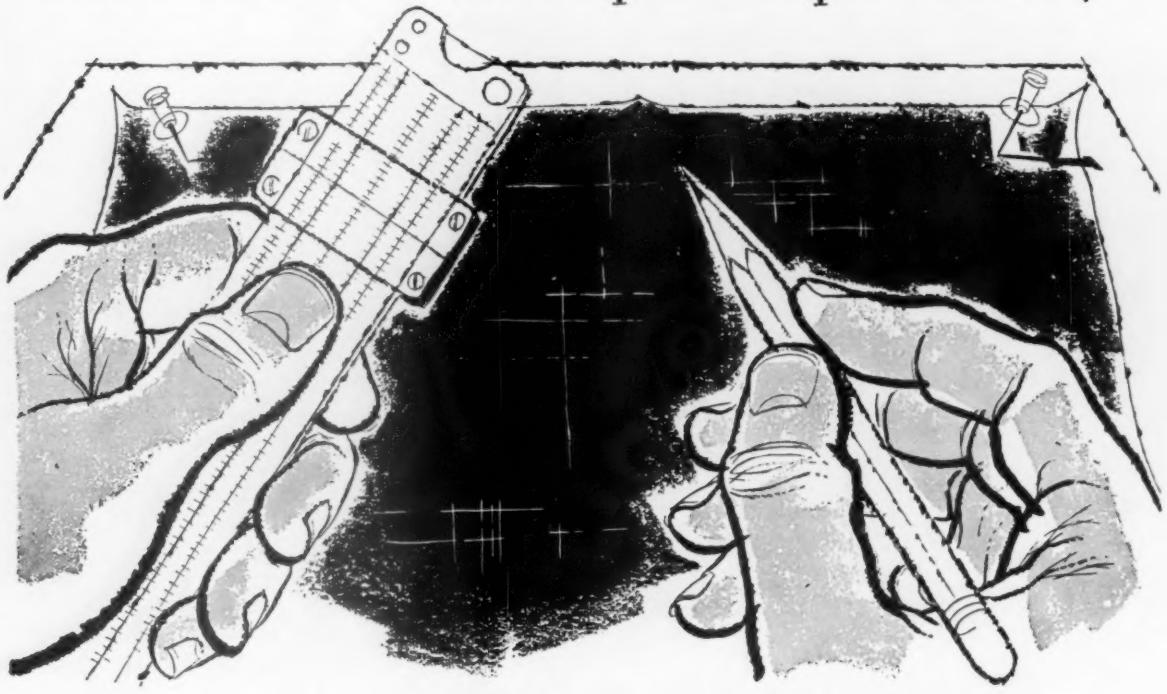
S-W INC.

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN • NEWTON 64, MASS. • GRIFFIN, GEORGIA

The Experienced Hands of Pritchard Are Available to the Pulp and Paper Industry



More than twenty-five years ago, J. F. Pritchard & Co. began applying its design and construction know-how and techniques to specialized industries. Today, Pritchard is a name that has the confidence of many industries, including the gas, power, petroleum and chemical industries.

Pritchard also makes available to the pulp and paper industry the same design, engineering and construction skills that have enabled Pritchard to become "Industry's Partner for Progress."

On your next expansion or remodeling or new plant project, your first step in the right direction will be to consult with Pritchard.

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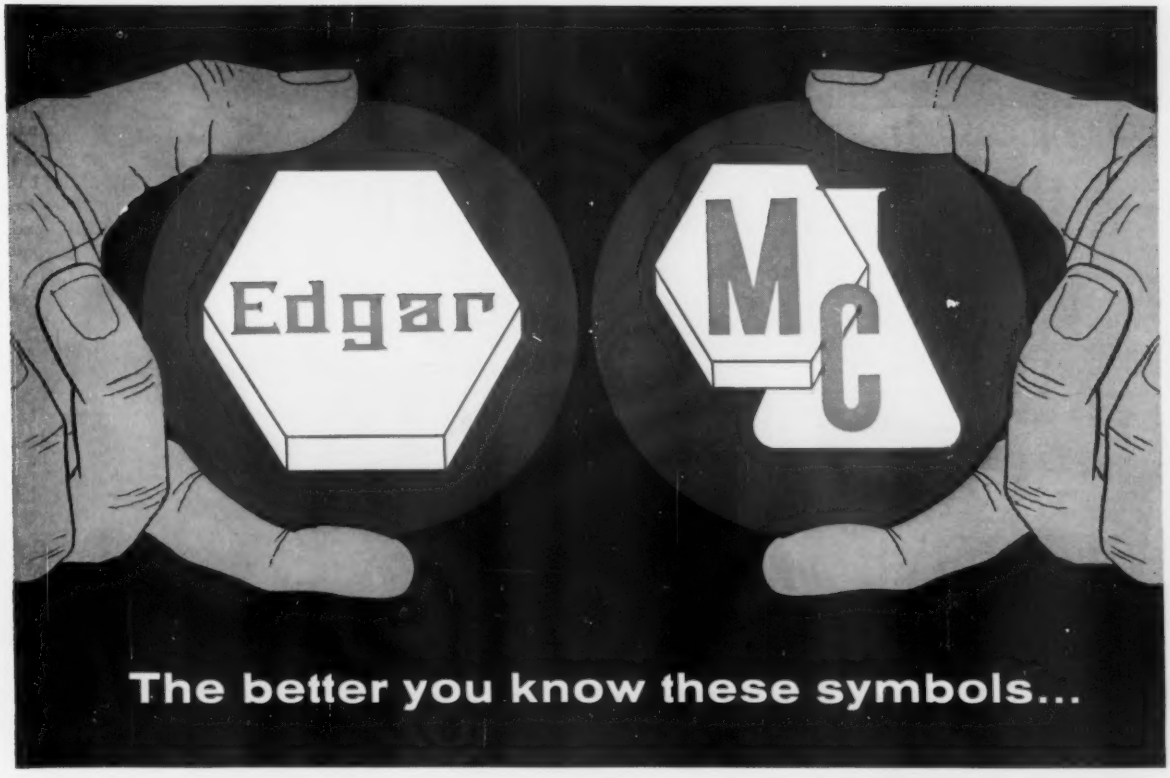

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Edgar Clay specialists—at mines, plants and laboratories—make certain the signs you see above represent the *finest* paper clays modern technology can produce.

Unexcelled Uniformity . . . Consistent Quality are the important points that stand out in Edgar Coating and Filler Clays. High brightness, low moisture, minimum residue, controlled viscosity, plus *true uniformity*—all are unvaryingly yours every time, every car, year in, year out.

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PULP & PAPER

STRICTLY PERSONAL

. . . more Midwest Medley

THOMAS L. GRESHAM has been appointed vice president in charge of research and development. . . . **DONALD LEHMAN,** a materials standards engineer for Kimberly-Clark, died Feb. 20th after a 3-months illness.

FOLKE BECKER, president, Trees For Tomorrow, Inc., has added 2 new staff members, **ROBERT ENGELHARD** and **WALTER NICEWANDER.** . . . **PHILLIP F. KRAUSHAAR** is director of industrial relations of Allied Paper Mills, Kalamazoo, division of Thor Corp. He was personnel mgr. of the paper mill and Panelyte div. of St. Regis. . . . . . **DR. CECIL L. HESS** has been promoted to asst. to **N. L. JURGENSEN,** gen. supt. of Mando's pulp and paper division, specialty paper mill. Dr. Hess joined Mando in 1951 and is a grad of Montana State College and Inst. of Paper Chemistry and holds bachelor, master and Ph.D. degrees. . . . **DR. JEROME P. BREZINSKI** has been upped to supervisor of paper research at Mando's lab at International Falls. He's a U. of Wisconsin and Inst. of Paper Chemistry grad. . . . In Mando's paper sales **E. R. ZIMMERMAN** has been advanced to paper sales and service rep.; **GORDON N. FISHER** and **DAVID M. LESLIE** to sales reps and **RICHARD K. BARRETT** to paper service rep.

Hornet Chippers are always custom made of individually selected steels . . . scientifically heat treated . . . precision ground. Made by New England craftsmen of long experience, who have the know-how to produce knives that speed production, lessen waste and hold down-time for regrinding to a minimum. One trial will convince you.

B & B DIVISION
LODDING ENGINEERING CORP.
UNION • NEW HAMPSHIRE

New Faces at Antioch

Going to the new CZ kraft mill, Antioch, Calif., now under construction: CARL JOHNSON (left) to become Production Planning Supervisor July 1, S. M. PURDY (right), to be Paymaster, assumes duties a month later.

Flashes from Far West

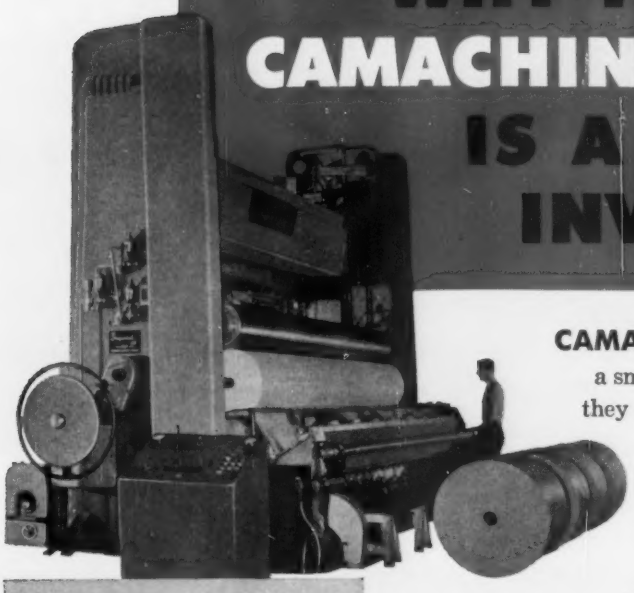
MARCUS C. BRADLEY is new pulp mill supt., St. Regis, Tacoma, succeeding **A. C. McCORRY,** who is supt. of new mill at Hinton, Alta.

When anyone of Swedish lineage reaches 60 years it is really a red letter day. So it was with **A. HALVAR LUNDBERG,** veteran Seattle consulting chemical engineer who has helped build many big pulp mills in the Far West. Many industry and other friends celebrated at a dinner on the big day. His father in Sweden plans a 90th birthday celebration this year, and Mr. and Mrs. L. of Seattle may be over there for it. . . . **NICK JAPPE** of the Institute of Paper Chemistry, Appleton, Wis., injured his ankle while he and Jo were visiting his family in Washington state. They reported good driving conditions on their trip West, but returned in a freezing rain in Wisconsin. . . . **RAYMOND E. DUNHAM,** supervisor of the print shop at Simpson Paper Co., was presented with the first diamond to add to his Old Timers pin upon completing 30 years service with Simpson.

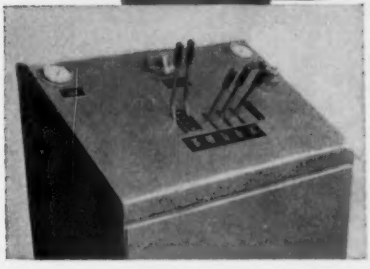
DR. HERMAN R. AMBERG has been named by Crown Zellerbach Corp., to head a company research team in a continuing microbiological study of the Columbia River. He was west coast resident engineer for National Council for

Continued on page 18

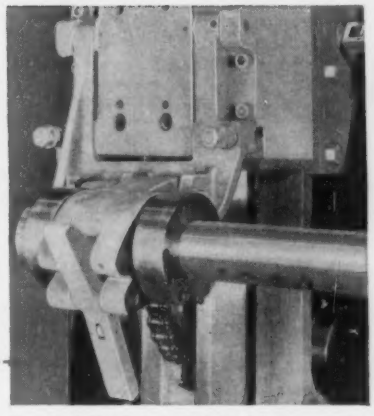
WHY THE CAMACHINE IMPERIAL IS A SOUND INVESTMENT...



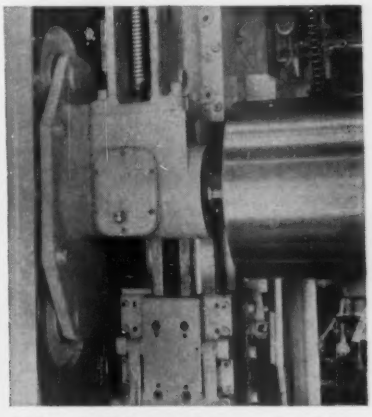
CAMACHINE IMPERIAL winders represent only a small fraction of the total cost of the mills which they serve. Yet, the IMPERIAL can protect profits on your entire plant operation by assuring matchless performance at the winding end of even the fastest paper machine. Exceptional speed, dependability, ease-of-operation and high quality of output are built into the IMPERIAL. Following are a few of the many important new features of IMPERIAL winders.



Centralized Controls . . . All hydraulic and pneumatic controls and pressure meters are concentrated in one conveniently designed control station. *What does this mean to you? Easier operation, plus the fast, dependable control so necessary when running at high speeds.*

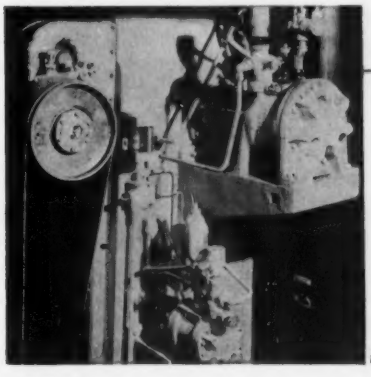


Rewind Shaft Bearing Holders . . . The rewind shaft bearing holders are "spring cushion" mounted both vertically and horizontally to absorb shock and strain caused by bent shafts. *To you this means smoother action—prolonged shaft and holder life.*



Riding Roll Suspension . . . Provisions in the mounting design permit the riding roll to tilt 1" lengthwise, providing optimum pressure and torque distribution. *Finished rolls are wound with uniform density . . . perfect for shipment or further processing.*

Hydraulic Lifts . . . Hydraulically operated motors raise and lower both the riding roll and rewind shaft bearing holders, quickly, with finger tip control. *Your profits are protected because costly downtime between sets is kept at a minimum.*



THE CAMACHINE IMPERIAL provides ability to stay well ahead of today's fastest paper machines...with reserve capacity to meet tomorrow's increased demands. Write for complete information.

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61 Poplar Street, Brooklyn 1, N. Y.

We look forward to greeting YOU at—
37TH ANNUAL CONVENTION
AMERICAN PULP and PAPER MILL SUPERINTENDENTS ASSOCIATION
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LAKE PLACID CLUB
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do you want low-cost corrosion or contamination

Acetone • Borax • Calcium Carbide • Calcium Carbonate • Calcium Chloride (Flake) •
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CF&I

LECTRO-CLAD® Nickel Plated Steel Plates will give it to you

Yes, you can get low-cost, yet effective protection against contamination and corrosion with all these chemicals...and many more!

Effective in heavy industrial applications where the corrosion rate does not exceed 0.0015 inches per year, CF&I LECTRO-CLAD Nickel Plated Steel Plates successfully combine the corrosion and contamination resistance of nickel and the economy and strength of carbon steel.

That's because CF&I LECTRO-CLAD is made by the Bart Process, which consists of electrodepositing a heavy layer of 99% pure nickel on a carbon steel plate. This process results in a permanent bond between the nickel and the steel base. The nickel plating is customarily supplied in the 8-10 mil range; however, it can be plated up to 15-20 mils, if specified.

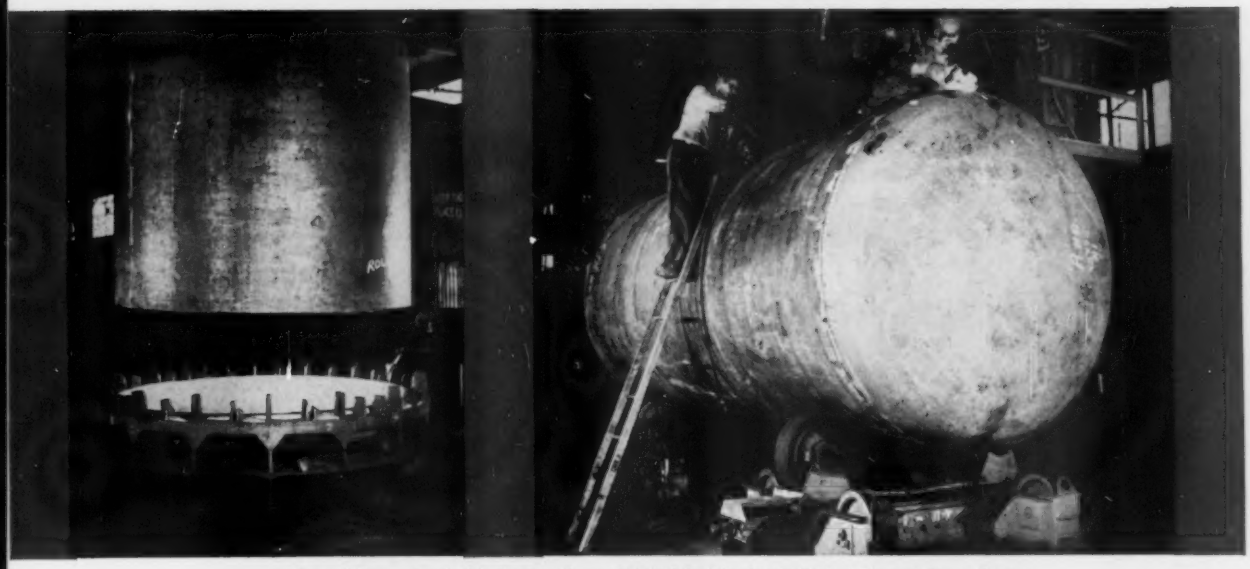
What's more, CF&I LECTRO-CLAD Nickel Plated Steel Plates are easily fabricated without costly special equipment. Just use regular shop equipment and bend it... weld it... roll it—the protective nickel layer will not check, spall or flake!

Ask our nearest sales office for the complete story on economical, effective, easy-to-fabricate CF&I LECTRO-CLAD Nickel Plated Steel Plate* today. Wickwire Spencer Steel Division, The Colorado Fuel and Iron Corporation, P. O. Box 1951, Wilmington, Delaware.

CF&I LECTRO-CLAD Nickel Plated Steel Sheets, Pipe, Fittings and Heads are also available.

protection against with these chemicals?

Caustic Soda • Chlorinated Hydrocarbons • Cold Hydrofluoric Acid • Dibutyl Phthalate
Methyl Alcohol • Petroleum Catalysts • Phenol • Potash • Resin Plasticizers • Salt
Sodium Sulphate • Titanium Dioxide • Tricresyl Phosphate



Assembling a tank fabricated from CF&I LECTRO-CLAD Nickel Plated Steel Plates.
The heads have also been nickel electroplated by the Bart Process.

3798

Claymont Steel Products

CF&I

Products of Wickwire Spencer Steel Division • The Colorado Fuel and Iron Corporation

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OTHER CLAYMONT PRODUCTS

Stainless-Clad Plates • Manhole Fittings and Covers • Large Diameter Welded Steel Pipe
Flame Cut Steel Plate Shapes • Flanged and Dished Heads • Carbon and Alloy Steel Plates

STRICTLY PERSONAL

. . . more Far West Flashes

Stream Improvement at Corvallis, Ore. **DR. J. F. CORMACK,** Oregon State College trained biochemist, recently returned to CZ's research center from military service, will be Dr. Amberg's assistant. The CZ scientists will work with **DR. E. J. ORDAL,** University of Wash. microbiologist. . . . **RICHARD A. HATCH** of Portland, Ore. has joined Sandy Hill Iron & Brass Works. He is a graduate of Penn State Engineering School and has been traveling among paper mills in the Portland, Salem-Albany, Vancouver, Camas and Longview areas, selling closed-circuit industrial television for several years. . . . **JACK SAVAGE,** of CZ, **BEN BRIGGS,** Rayonier, and **CHAS. NICHOLS,** CZ, head the planning committee for the Gearhart, Ore., meeting May 17-19. . . . **O. T. DEFIEUX,** former Camas mill plant engineer, now retired, caught a 33-lb. dolphin while vacationing in Hawaii.

J. G. E. ELLIS, asst. chief engineer at Rayonier's central engineering division at Hoquiam, Wash., is being transferred on temporary assignment to Vancouver, Canada, **R. J. KUTCHERA,** chief engineer, announced. Mr. Ellis will work on the $11,000,000 expansion of Rayonier's subsidiary, Alaska Pine & Cellulose. . . . **DONALD C. ALTMAN,** transferred last year to the London office of Allis-Chalmers British subsidiary, recently visited offices and friends in the industry, from New York and Milwaukee out to his former territory in Seattle. He indicated that life in England was proving to be very agreeable to him and his wife, Charlotte. . . . **BOYD WICKWIRE,** safety supervisor for Longview Fibre Co., Longview, Wash., was chosen speaker for industry at opening of the Washington Governor's Safety Conference in Olympia last month.

DR. W. W. MOYER, director of research for Crown Z, becomes member of CZ's 16-man management committee which acts as coordinating medium for current and proposed activities of each major unit of the corporation. . . . **RENOLD W. ANDERSON,** assistant mechanical supt. CZ West Linn, is transferring to new Antioch division as master mechanic. . . . **JOHN M. REINERS,** CZ Port Angeles, became paper mill supt. replacing **CLAUD P. KELLEY,** recently retired. . . . **DUDLEY F. CHURCH,** research liaison assistant, CZ Headquarters, has been named technical supervisor of Antioch mill division.

AMERICAN POTASH & CHEMICAL CORP. held its annual sales meeting at company headquarters at Los Angeles and included tours of company facilities at Vernon, Whittier and Trona, Calif., Henderson, Nev., and San Antonio, Tex. Twenty-eight representatives from United States and London attended the meeting, presided over by WILLIAM J. F. FRANCIS, vice president in charge of sales. Present from western offices were Mr. Francis, William M. Clines, western sales manager, and representatives Ralph N. Hoh, Daniel A. Lundy, Frank McGrane, Al F. Swain, George A. Schnier, Willard E. Horn, Ellis C. Kent and Bernard F. Nelson and Frank Radovich. The New York group, headed by Ed M. Kolb, eastern sales manager, included Alfred deRopp, Robert M. Curts, William F. O'Brien, Ernest A. Graupner, Nelson E. Wendt, Donald Shallcross, Dr. A. J. Dirksen and Paul McCoy. Others were C. L. Straughan, Atlanta, Ga.; Paul F. Staub and Trevor A. Steele, Portland, Ore.; Chester A. Lawton, Columbus, O.; Rod Taft, San Francisco; William W. Young, Shreveport, La.; and Ed C. O'Connor, Waterloo, Ia. George L. Thompson was present from the British subsidiary.

Continued on page 22

ECONOMICAL CARRIERS FOR—

- Newsprint
- Wax Paper
- Parchments
- Cash Register and Adding Machine Paper
- Blue Print Paper
- Cellophane
- Tapes, etc.

Sonoco DURO Paper Mill Cores, with Bermico Metal Ends, combine super-strength, long service and low cost. A special scuff-resistant paper is used for the outside wrap. Available with metal ends in sizes 3" to 6" I.D., in any length. Also available is the economical RHINO non-returnable core in standard and special sizes.

SPECIALTY CORES from ¼" O.D. and up, in lengths from ½" to 24' or longer with smooth or rough surfaces. Furnished in solid colored stock, plain or with special inside or outside wrap.

DURO RETURNABLE and RHINO NON-RETURNABLE

FREE paper mill core brochure sent upon request!

SONOCO PAPER CARRIERS REG. U.S. PAT. OFF.

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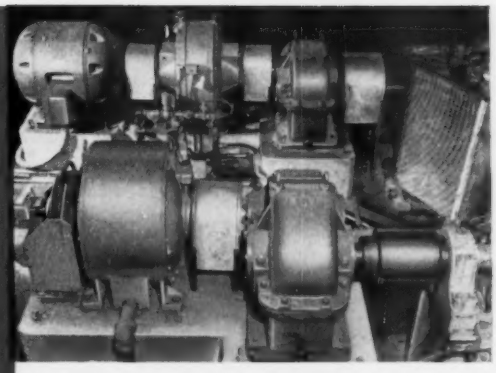
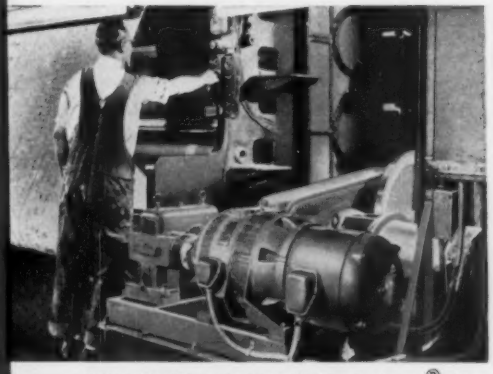
DEPENDABLE SOURCE OF SUPPLY



Model WB-670 liquid cooled, eddy-current brake used on paper slitter center unwinder, and a WC-160B liquid cooled, eddy-current coupling with eddy-current brake, rated 125 HP at 1100 RPM, used on a surface rewinder, in plant of Continental Paper Company, Richfield Park, N. J.



Frame 3265, 15 HP at 1700 RPM Ajusto-Spede® drive installed as a center rewind on a Kidder press at Marathon Paper Company, Menasha, Wisconsin.

Model 30WC18 liquid cooled, adjustable speed, eddy-current coupling, rated 600 HP at 580 RPM. One of 4 paper machine main drives at Howard Smith Paper Mills, Ltd., Cornwall, Ontario.

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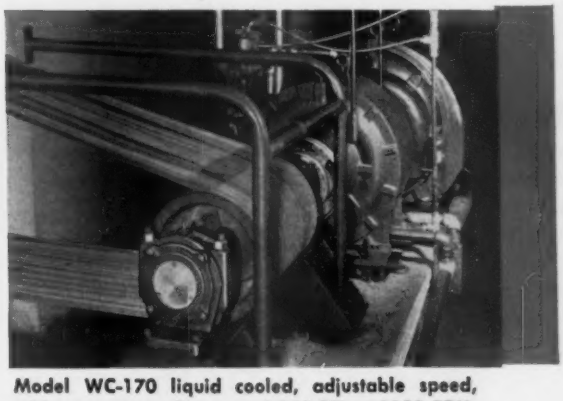
DYNAMATIC®

EDDY-CURRENT EQUIPMENT

Finds Many Applications in the Paper Industry

From pulp-wood operation to finished carton, magazine, newspaper, or cellulose product, Dynamatic eddy-current equipment is widely used in the paper industry to fulfill a long list of variable speed requirements, maintain constant tension or constant speed, and activate automatic processing operations. In such applications as paper machine line shaft and accessory drives, pulp processing drives, winder and unwinder drives, calenders, slitters, and printing machines, Dynamatic equipment contributes to the quality of the finished product. In addition, these trouble-free units make for increased production, uninterrupted operation, with minimum maintenance, and reduced costs.

Send for your free copy of Bulletin GB2, which illustrates and describes the basic Dynamatic Eddy-Current units.



Model WC-170 liquid cooled, adjustable speed, eddy-current coupling, rated 200 HP at 1100 RPM. One of 2 main drives driving 112" Fourdrinier paper machines at Fletcher Paper Co., Alpena, Michigan.

EATON — DYNAMATIC DIVISION
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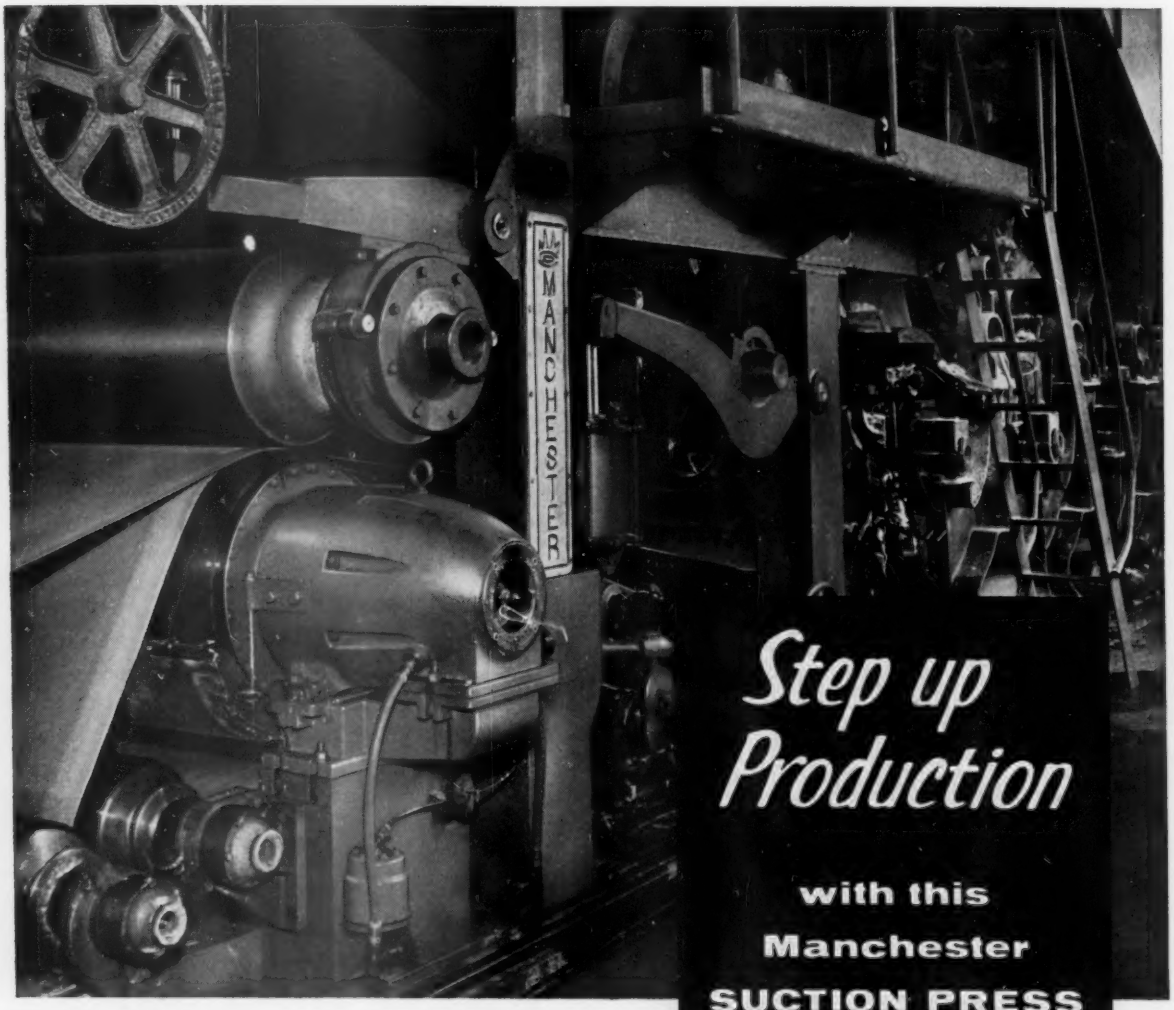
3307 FOURTEENTH AVENUE • KENOSHA, WISCONSIN



Step up Production

with this Manchester SUCTION PRESS SECTION

A few weeks after installing a Manchester Suction Press Section, one mill reported a substantial increase in machine speed and expects even higher speeds with a corresponding increase in production.

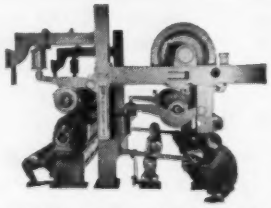
With it came added felt life of more than 250 per cent.

The reasons are simple: Better water removal, better moisture control, and a higher drying rate. Added up, they mean a more uniform high-quality sheet, greater profit, and a stronger competitive position for your mill.

Best of all, a Manchester Suction Press can be installed in your present machine without major changes or prolonged shutdown. We engineer it for you as a complete unit.

It will pay you to look into this modern Manchester Suction Press Section. Write for more information.

OTHER PRODUCTS: Primary Presses • Size Presses • Pope Type Reels • Paper Machine Drives • Rubber-Covered Drilled Suction Press Rolls • Drilled Suction Drum Rolls • Drilled Suction Couch Rolls • Cylinder Molds • Smoothing Presses • Complete Fourdriniers • Winders & Slitters



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SPECIALISTS IN DESIGNING AND BUILDING PAPER MILL MACHINERY

Pennsalt Western Plants Provide Economy and Fast Service to Western Pulp and Paper Industries

Pennsalt Plant at Tacoma, Washington

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Chlorine • Caustic Soda
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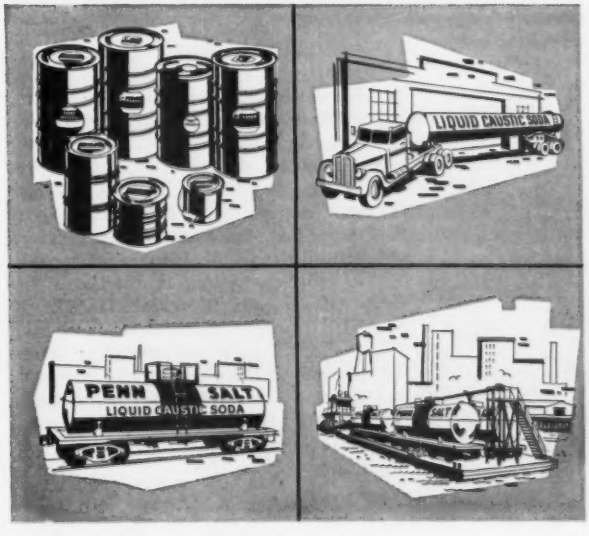
Many distinct services and economies are available to Northwest users of PENNSALT chemicals. PENNSALT'S Northwest plants provide fast and dependable service . . . transportation costs are less and inventories are smaller. These advantages mean fewer problems and save money. Then, too, PENNSALT quality controlled chemicals insure uniform, dependable products, and its Technical Service Department is always available for assistance on uses or application of chemicals required for pulp refining.



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Pennsalt Chemicals

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Tacoma, Washington

Southern Sidelights

This may sound like a tale calculated to gain immediate membership in the Liar's Club of America, but last month a young pilot from Douglas, Ga., near Atlanta, jumped out of his airplane when it caught fire while he was spotting a forest fire, landed—WITHOUT A PARACHUTE—and lived to tell about it. The pilot was **L. H. "PETE" BARNWELL,** who flies part time as a fire spotter for Georgia Forestry Commission. Pete took off to check a reported fire near Broxton, Ga., got to 1,000 feet and found the floor mat of his plane ablaze. He wasn't wearing a chute and it was too hot to stick around so Pete stepped out on the wing struts and headed for home, flying the plane from outside. Forester Ronald Drury heard his radio appeal and rushed to the airport with a water truck. Pete never made it. At 30 feet the flames started licking at the gas tank so he just jumped. He landed in a mudhole, rolled and was on his feet in time to see his little two-seater plough into a field a few yards away and burn to a cinder. And this, as Jack Webb would say, is a true story. . . . While **J. W. McSWINEY,** asst. secy-treas. at Brunswick Pulp & Paper Co. is off taking a refresher course at Harvard University, several men in the mill are handling his affairs on "temporary duty." **JOHN STILES,** special asst. to Mr. McSwiney, is integrating all accounting and financial matters, **HERMAN SCOTT** takes on contract contacts and purchasing in addition to his job as purchasing agent, **BRADEN ROBINSON,** plant accountant, will take on matters pertaining to the mill operation and **HENRY WALDEN,** woods accountant, will handle similar responsibilities in wood precurement and timber lands.

Gair Woodlands at Savannah, Ga., and Rayonier Inc., at Fernandina Beach, Fla., both have announced college scholarship grants to high school youths. Gair will provide two forestry scholarships totalling $2,000 each to outstanding students and Rayonier will provide $750 a year to the outstanding student in each of the five Georgia and Florida counties in which it operates. . . . Brunswick Pulp & Paper Co. has donated an acre of land and all the wood necessary for a parish to build its church in Florida . . .

Official reports reveal **DAVID B. KUHE's** new responsibilities involve all Hudson's 7 mills and converting plants, not only Palatka, Fla., where expansion is going on. He is new vice pres. i/c manufacturing for Hudson.

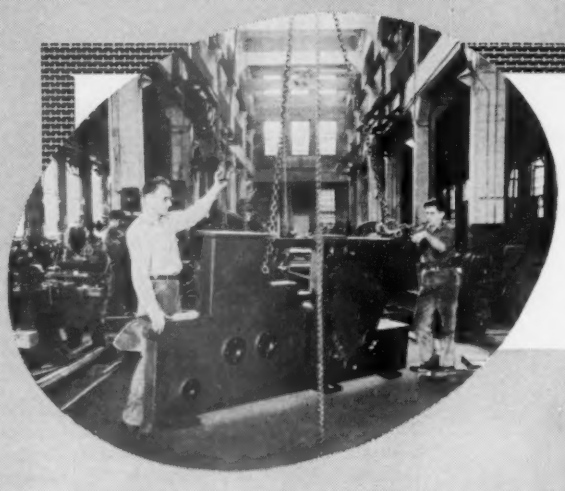
BUNN BEASLEY, veteran gen. supt. of Brown Paper Mills, Inc., West Monroe, La., has retired. Bunn is widely known

Continued on page 26

In Southern Spotlight

WILLIAM L. BELVIN (left) is new Dir. of Herty Foundation in Savannah, Ga., succeeding Dr. Reavis Sproull, who has resigned to become Mgr. of Tech. Services for Philip Morris Co. Mr. Belvin is a graduate of North Carolina State and has been with the foundation since August. WILLIAM H. LIEBETRAU (right) will supervise direct sales activities for the Southern Div. territory of Arkell & Smiths. Mr. Liebetrau will live in Atlanta and succeeds BILL WELLINGS who has been transferred to Wellsburg, Va.

"From ingot to fourdrinier wire"



HAIRSPRING ACCURACY — BRIDGE-BEAM SIZE

Our machine shop doesn't make hairsprings or bridge beams, but our maintenance and construction operations demand equal versatility from our men and machines. Hub of an integrated operation such as ours, its skilled personnel are ready to machine a part to a fraction of a thousandth of an inch, on a tiny instrument part or a huge loom frame.

Because our plant is *completely integrated*, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are *truly ours* — "from ingot to fourdrinier wire."

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.

FARREL® Calender Rolls assure 3 big benefits:

Benefits like those above make Farrel rolls the most popular in the industry*, and the logical choice for your calenders.

Farrel rolls have the perfect combination of metal formula and proper depth of chill for maximum service life. The chill is sufficiently deep to resist crushing and abrasion; the structure of the body strong enough to carry the load imposed in the service for which it is designed.

Rolls requiring crown are made with mathematically precise shape, symmetrical on both halves of the roll. This assures correct compensation for loading and weight of rolls in the stack. Rolls not requiring crown can be made round and straight to tolerances as close as .00025", where such extreme accuracy is required.

Full information on rolls for specific applications, or details of other Farrel paper mill machinery, are yours for the asking.

Farrel-Birmingham®

FARREL-BIRMINGHAM COMPANY, INC. • ANSONIA, CONN.

Plants: Ansonia and Derby, Conn., Buffalo and Rochester, N. Y.
Sales Offices: Ansonia, Buffalo, New York, Akron, Chicago, Fayetteville (N. C.), Los Angeles, Houston

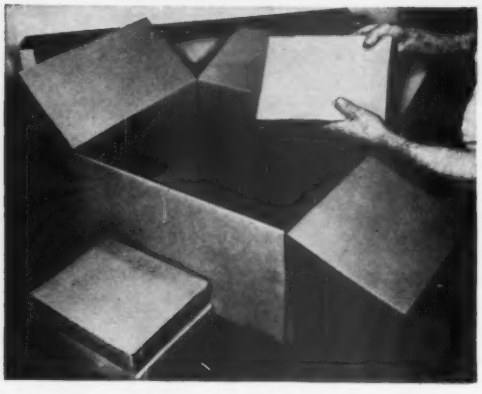
***MORE CALENDERS ARE EQUIPPED WITH FARREL ROLLS THAN ALL OTHER MAKES COMBINED!**

FARREL PAPER MILL MACHINERY — ROLLS: Chilled Iron, Dry Sand, Meehanite,® Alloy Iron, Steel, Chromium-Plated • TYPES OF ROLLS: Calender Stack, Board Calender, Super Calender, Glassine Calender, Friction, Breaker, Smoothing, Coating, Creping, Gumming, Paraffining and Waxing, Saturating, Miscellaneous Special Purpose • CALENDERS: Paper and Board • GRINDING MACHINES: Roll • CALIPERS: Roll • GEARS, CUT: Spur, Helical and Herringbone • SPEED REDUCING GEAR UNITS • SPEED INCREASING GEAR UNITS • FLEXIBLE COUPLINGS

FB-1058

REPELLENT WADDING—The unique characteristics of Aquapel make it ideal for sizing grades like cellulosic cushioning materials, which have formerly presented difficult problems. A new concept in sizing, Aquapel reacts chemically with cellulose fibers to form a surface that is resistant to the penetration of water, acid, and alkali.

AQUAPEL® SOLVES THE TOUGHEST SIZING PROBLEMS



JUTE LINERS—Efficient sizing of alkaline jute liners for corrugated boxes has always been difficult to obtain. Now Aquapel makes it easy without sacrificing strength. A small amount of Aquapel provides a degree of resistance to moisture that keeps boxes looking better longer.

Impossible to size? If you haven't tried Aquapel, you haven't tried the new concept in sizing that makes the difficult look easy.

There are many good reasons for the Aquapel difference. To begin with, Aquapel is not just "another sizing agent." Neither resin nor wax, Aquapel is a chemical compound that becomes an integral part of the fiber. It is never just "stuck on."

Applied on the surface, Aquapel is also a lot more than a surface size in the usual sense. Any equipment commonly used for the surface treatment of paper can be used to apply Aquapel. And it takes only a little Aquapel to make a big difference.

If you haven't tried Aquapel, write Hercules for a sample and descriptive literature.

Paper Makers Chemical Department

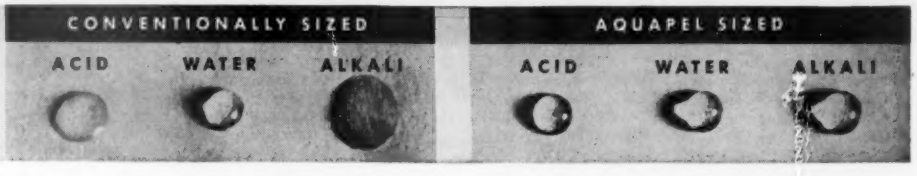
HERCULES POWDER COMPANY
INCORPORATED

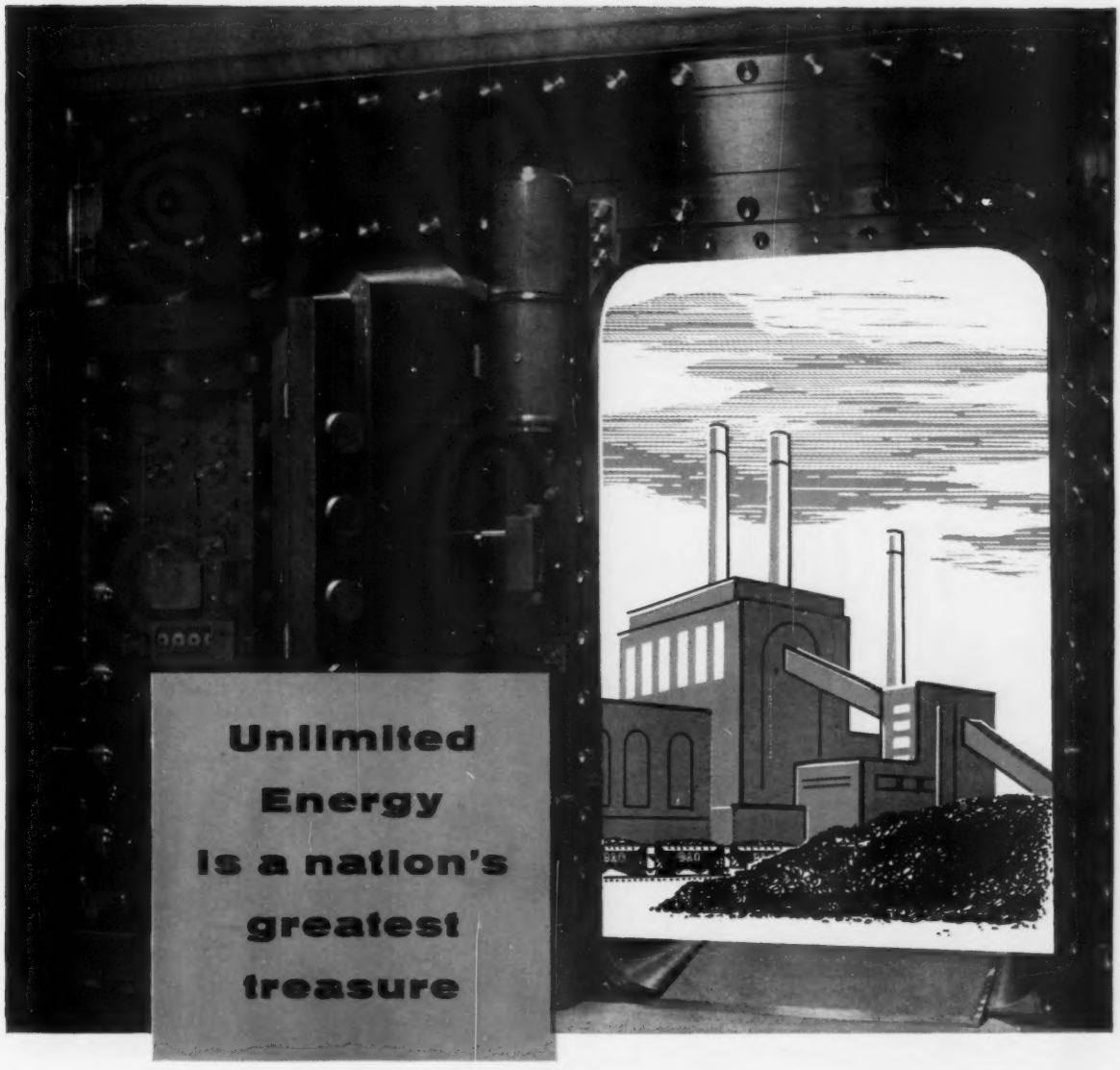
965 King Street, Wilmington 99, Del.

PP56-2

SEE YOU AT THE AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION CONVENTION — LAKE PLACID CLUB — JUNE 12-14

AQUAPEL®
makes the difference





Modern industrial might comes from nature's harnessed energy. This nation's greatest single energy resource is found in its tremendous reserves of Bituminous coal.

As population increases—as living standards rise, vast additional amounts of energy will be required—and found in Bituminous—*the fuel with a future.*

Fields served by B&O contain known reserves of more than 8 billion tons suitable for every purpose. The nation can safely *bank on bituminous* treasures like this and on B&O operators to mine and supply it in greatest quantities, with increasing efficiency at stable-low-cost. *Ask our man!*

Let our Coal Traffic Representative suggest a constant-low-cost Bituminous coal for your needs—
COAL TRAFFIC DEPARTMENT
B&O RAILROAD • BALTIMORE 1, MD.
LExington 9-0400

STRICTLY PERSONAL

. . . more Southern Sidelights

in this industry for having won golf titles and having been a past golf champion of the Supts. Assn., but he recently told PULP & PAPER he gave up golf for fishing, now his favorite sport.

WILLIAM B. HUGER, asst. treasurer of Champion Paper's Carolina Div., is newly elected vice-president of the recently formed North Carolina Travel Council . . . And in Houston, Tex., **A. M. "MIKE" KOURY,** Champion's Texas Div. manager of industrial and community relations, has been named "Boss of the Year" by the Houston Chapter of the National Secretaries Assn.—he received a gold-plated "Oscar" from his secretary, **VIRGINIA BLAKEMORE.** "Boss" Koury turned right around and returned the honor—he praised Virginia for doing "90% of the work and making 100% of the decisions."

Industry was saddened by two deaths this past month: **R. J. JACKSON,** traffic coordinator of Atlanta Paper Co., and **BEN M. WILLIAMS,** manager of sales promotion for Gaylord Container Corp . . . **ARTHUR MALONE** is new Safety Supervisor at Rayonier's Fernandina Beach mill. He is a former Atlantan and a graduate of Georgia Tech . . . International Paper Co. played host last month to a large group of newspaper editors from all over the South, then held a question and answer "Press Gallery" on the industry . . . **RAMON GREENWOOD,** formerly a district manager for American Forest Products Institute, is new director of public relations for the Crossett Co. at Crossett, Ark. . . . **KIRK SUTLIVE,** public relations director for Union Bag & Paper Co., now wears the honorary title of "Judge"—he was elected to fill **TAD DUNN**'s spot on the Chatham County Commission . . . **JAMES B. FOSTER** has taken over duties as plant engineer and **JOHN B. SHEARER** has started as industrial engineer at Stone Container Corp.

BURTON F. RITCHIE, mill agent at International Paper's Natchez plant, has been elected to board of directors of the Mississippi Economic Council . . . **HARRY K. HERR** has joined the staff of the Gulf States Paper Corp., Tuscaloosa, Ala., as section engineer. He is a graduate of Purdue U., class of '47 . . .

TRONA®
SALT CAKE
FOR
QUALITY KRAFT
PRODUCTION
TRONA, long the largest basic source of natural sodium sulphate (Na_2SO_4) continues to produce highest purity uniform grade Salt Cake, to keep pace with the expanding kraft paper industry. You can be sure, when you specify TRONA, of an adequate and dependable source of supply for this essential ingredient in quality kraft production.
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Appointed In Canada

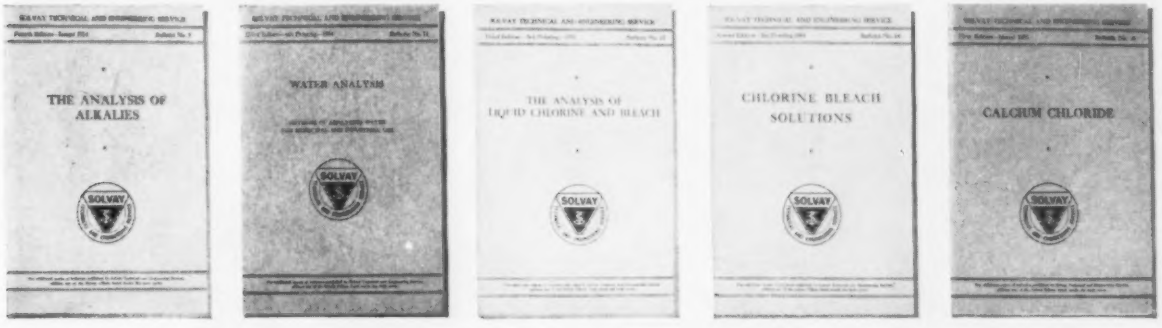
E. H. WOODRUFF, (left) former Asst. Mgr. in Rayonier's chemical cellulose mill at Port Angeles, Wash., has been appointed director of operations, Cellulose Division, Alaska Pine & Cellulose at Vancouver, B.C., according to announcement by Exec. Vice Pres. W. E. BREITENBACH. W. A. BAIN continues as manager of the cellulose division and E. DeLUCA as assistant manager. J. A. MICHAUD (right), is new Vice Pres. of Woodlands Operations, Consolidated Paper Corp. Ltd., Montreal. He was General Woods Mgr., and now succeeds FRANCOIS FAURE, retired.

Column from Canada

PAUL G. HAYES, Montreal, has been appointed general sales manager of Mason-Neilan Regulator Co. for Canada . . . **T. L. DUNBAR** has been elevated to chairman of Capital Wire Cloth & Mfg. Co. in Ottawa, with **F. R.**

Continued on page 30

THESE SOLVAY TECHNICAL BULLETINS



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American Pulp & Paper
Mill Superintendents Association
June 12 to 14, Lake Placid Club

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Soda Ash • Snowflake® Crystals • Potassium Carbonate
Calcium Chloride • Ammonium Bicarbonate • Sodium Bicarbonate
Cleaning Compounds • Caustic Potash • Sodium Nitrite • Chlorine
Caustic Soda • Ammonium Chloride • Para-dichlorobenzene
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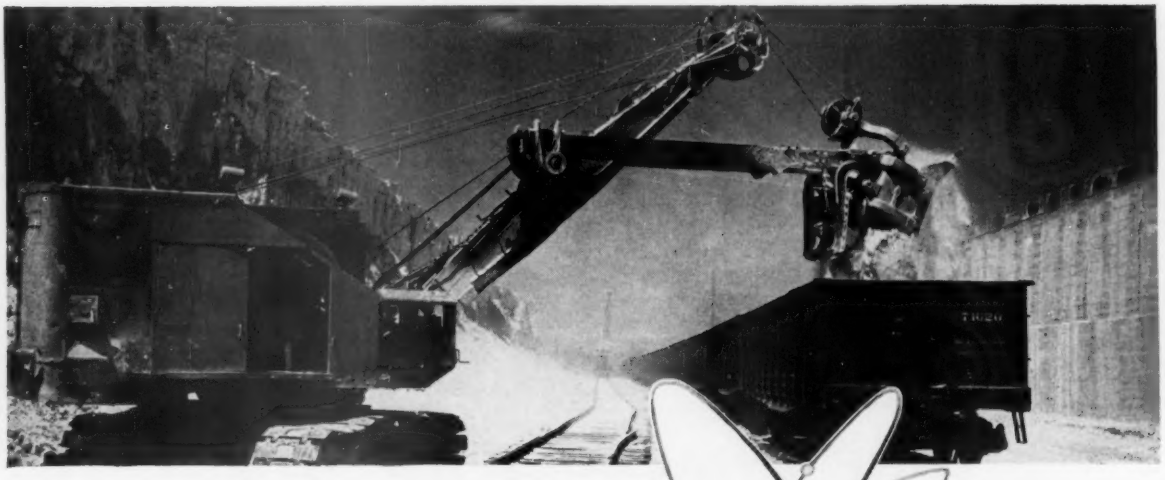

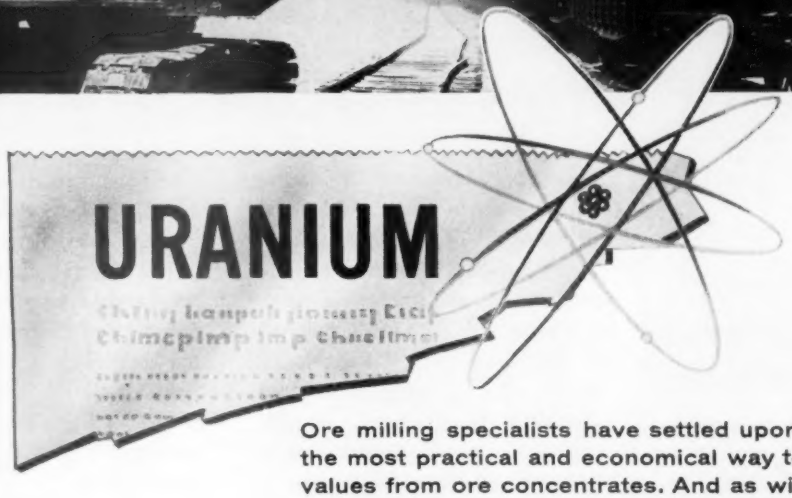

Ore milling specialists have settled upon acid leaching as the most practical and economical way to extract uranium values from ore concentrates. And as with so many other ore-leaching processes, sulphuric acid appears to be the best of the solvents, considering costs and availability.

So chalk up another 'headline' end-use for this most widely used of all acids! But this very broadening demand for sulphuric emphasizes the problem facing producers of the basic element SULPHUR. Search for new commercial sources goes on without let-up all over the world. This company is playing a leading role in this search.

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N. Y.

Sulphur Producing Units

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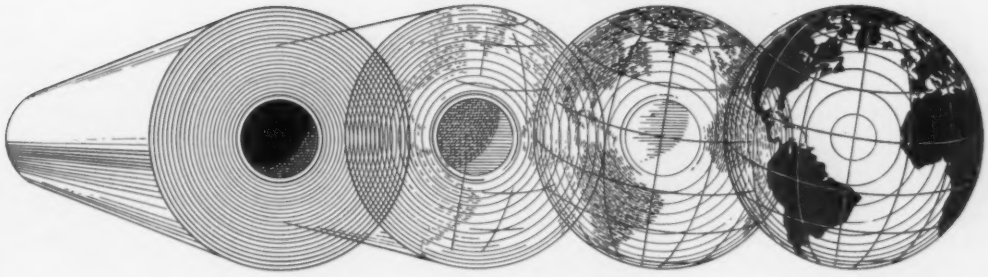
How To Find Steady Customers Overseas...



Through

CNC

Steady customers are hardest to find—but once found, they are the same all over the world. They come back for repeat orders because they value your products and services—are as loyal to you as you are to them. Solid reputations are founded on steady customers.

Central National Corporation specializes in locating steady customers—buyers from all over the world—for its supplying mills in the pulp, paper, board and newsprint fields. In the 55 leading foreign paper markets, our representatives establish lasting connections for the mills we serve...connections with reliable, steady customers who build on solid foundations because they build for the long-term future.

These are the overseas customers you can reach through CNC. Quite easily, too. Because while CNC service enables you to spread your sales to the remotest foreign lands, yours is a domestic sale. *Contact us today.*

CENTRAL NATIONAL CORPORATION

PAPER EXPORT CNC

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100 Park Avenue, New York 17, N. Y.

D. Samuel Gottesman, ***President***

PULP & PAPER

STRICTLY PERSONAL

. . . more Canadian Column

GRAHAM, JR., succeeding him as president. . . . **GORDON McMILLAN**, Toronto lawyer and vice president of Algoma Steel Co., has been elected a director of Bathurst Power & Paper Co., Bathurst, N.B. . . . **J. G. CHALMERS**, administrative vice president of Bathurst, has retired. . . . **E. HOWARD SMITH**, president of Howard Smith Paper Mills, has been elected president of Canada Paper Co., Montreal. He was formerly mill manager at Cornwall.

PAUL E. COOPER, former president of Pacific Mills, CZ subsidiary, and **GEORGE O'BRIEN**, senior vice president, Powell River Co., are among directors of a new forest enterprise in interior British Columbia—Crestbrook Timber, Ltd. . . . **CHARLES H. SAGE**, retired vice president of Kimberly-Clark and president of Spruce Falls Power & Paper, plans to spend much of his time on a fruit and cattle ranch 100 miles south of San Francisco. He has a herd of 200 Herefords and plans to irrigate several hundred acres for farm crops. . . . **GEORGE A. HOLLAND** has been named vice president for the Martin Paper Products organization, subsidiary of Powell River Co. . . .**H. V. TOWNSEND**, formerly manager at Calgary, has been named manager of Martin Paper Products plant at Vancouver.

JOHN D. DONALDSON is new general manager of Halifax Power & Pulp Co., succeeding the late **E. DOUGLAS HYNDMAN**. He has been with the company for the past 10 years. . . . **R. H. HEDGER**, manager of industrial relations, E. B. Eddy Co., Hull, Que., was elected chairman of Industrial Relations Section, Canadian Pulp and Paper Assn., recently in Montreal. **H. K. JONES**, Mersey Paper Co., was elected vice chairman. New members of the executive committee are **W. C. L. BARKER**, St. Lawrence Corp.; **W. FORRESTER**, Marathon Corp., and **W. C. R. JONES**, Powell River Co. . . . **ROBERT CARLYLE MacKENZIE**, treasurer of Powell River Sales Co., and well known in British Columbia industry since 1919, died suddenly during a visit to Seattle.

A. J. VALLEY, formerly with Koppers Co., has joined Alaska Pine & Cellulose Ltd. in Vancouver, B.C., as manager of the silvichemical division. He will be in charge of the Marpole Rayflo plant now under construction.

SEVEN IN A ROW . . . A pound of steam that enters these septuple effect Swenson Evaporators at Longview Fibre removes up to six pounds of water from spent cooking liquors.

Half a Million Pounds

OF EVAPORATOR CAPACITY PER HOUR!

Lower operating costs through increased evaporator steam economy! That is the story at Longview Fibre Company, Longview, Washington, since Swenson Evaporators were installed. The two septuple effect evaporators provide capacity to evaporate one-half million pounds of water per hour!

The Longview economy story is not new to Swenson. Ninety per cent of the septuple effect evaporators in use today were engineered by Swenson. Put Swenson's engineering know-how and experience to work in your plant. Call a Swenson engineer . . . now.

SWENSON EVAPORATOR COMPANY
15632 Lathrop Avenue, Harvey, Illinois

SWENSON
Process Engineering for the Process Industries
SINCE 1889
A Division of WHITING Corporation

Evaporators • Pulp Washers • Filters
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Heavy duty *in every inch of it*

ELLIOTT *Synchronous* MOTORS

If you are looking for a really rugged drive, check up on this motor. For details, 'phone your local Elliott engineer, or write Elliott Company, Ridgway, Pa.

Have you a tough drive like a ball mill, pulp grinder, wood chipper, or anything else that takes real stamina to keep going dependably? Here's the motor for it — this big, husky Elliott slow-speed synchronous motor, with all the crack-proof strength and enduring rigidity of heavy welded steel, in base, bearing support, rotor and frame. It's the way Elliott builds big motors, and it's setting new records everywhere in performance as well as popularity.

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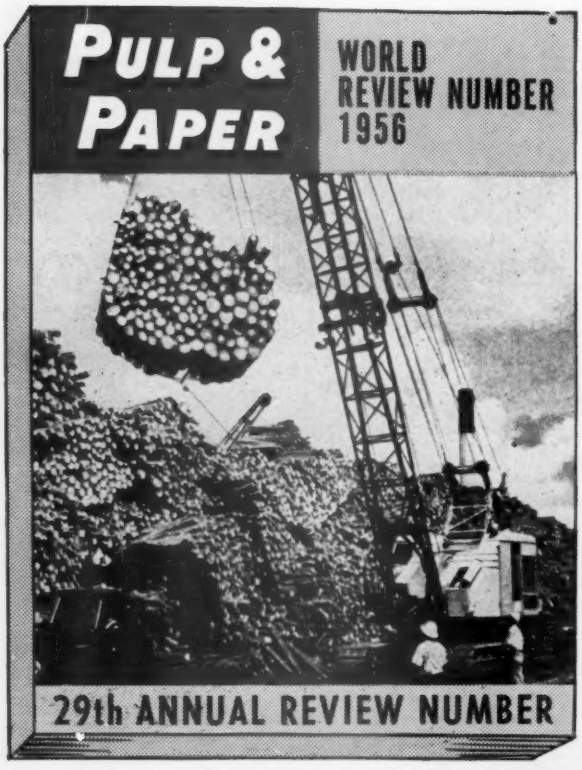
FOR MOTORS 1-200 HP: CROCKER WHEELER DIV. JEANNETTE, PA.

STEAM TURBINES • MOTORS • GENERATORS • DEAERATING HEATERS • EJECTORS • CONDENSERS • CENTRIFUGAL COMPRESSORS • TURBOCHARGERS • TUBE CLEANERS • STRAINERS



1956 WORLD REVIEW NUMBER

for World Leadership
for Year-round Readership

PULP & PAPER'S 13th ISSUE PUBLISHED IN JULY . . .

BE SURE TO INCLUDE THIS ISSUE IN YOUR 1956 SCHEDULES

When planning your advertising for 1956, be sure to order space in the "World Review Number" of PULP & PAPER. World-wide interest in this special number, plus an established reputation as a statistical authority for the industry, account for its high impact, year-around readership. Regardless of your schedule in the monthly issues of PULP & PAPER, advertising in the "World Review Number" will add extra impact to your sales program.

THE WORLD REVIEW NUMBER

The "World Review Number" is a regular 13th issue of PULP & PAPER, published in July and in addition to twelve regular monthly issues. It is received by all subscribers to PULP & PAPER and regular rates apply. Advertising in it is often planned as a 13th, 7th or single issue insertion.

WORLD REVIEW HIGHLIGHTS

- **COMPLETE WORLD PULP STORY**

. . . including *World Pulp Map,* showing flow of market pulp during 1955; *World Pulp Review,* showing trends and predicting what's ahead; Story of Non-Paper Pulps, covering textile and plastics uses; and exclusive *World Market Woodpulp Directory.*

- **DOMESTIC SUMMARY**

. . . a review of the year in the United States and including complete statistical tables on the pulp and paper industry, woodpulp and pulpwood.

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. . . a review of activities of our North American neighbors in manufacture of its most important commodity—pulp.

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- **STATISTICAL REVIEW**

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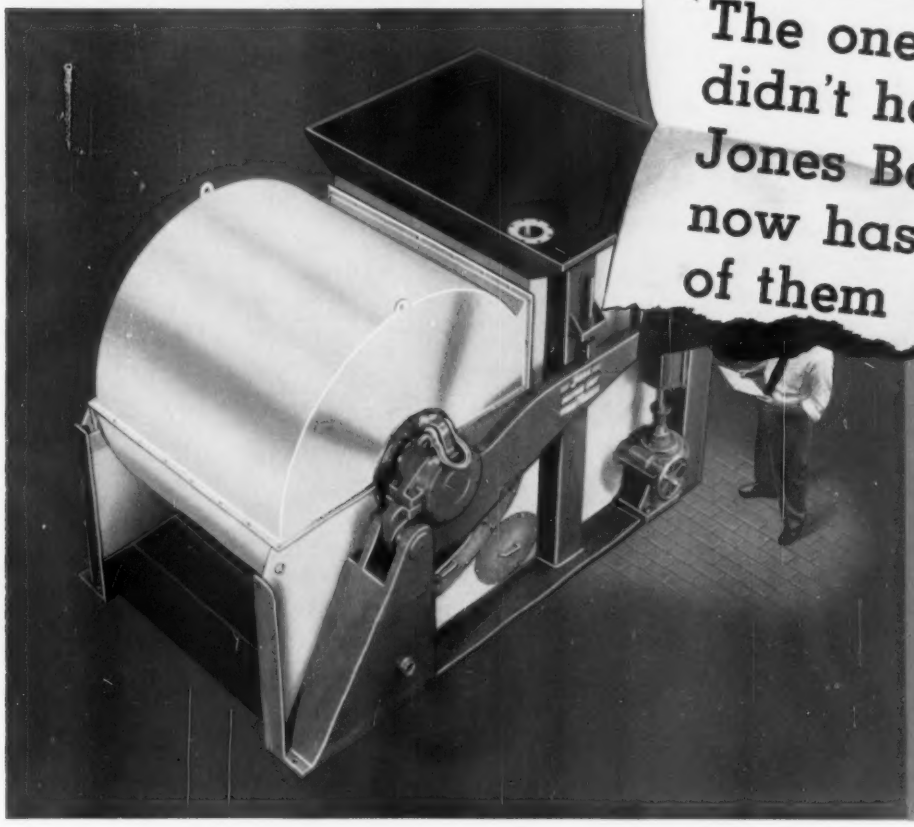
FACT:

Every glassine mill but one has selected Jones Beating

This was a fact, last year when this ad first appeared

The one mill that didn't have a Jones Beating Unit now has several of them



WHY?

Why this overwhelming preference for one machine for this tough assignment?

BECAUSE . . .

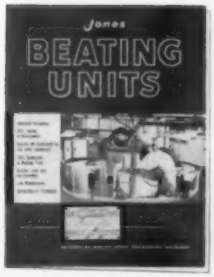
the Jones Beating Unit has proved, in mill after mill, that it will produce greater uniformity, better transparency, better all 'round characteristics — *at lower power cost.*

A leading glassine mill* writes:

> "Our experience . . . has convinced us that they are capable of producing high grades of glassine...which cannot be duplicated by any other equipment."

Glassine, of course, is only one of many papers on which the Beating Unit has produced such results. Ask your Jones representative how it can serve your needs. *Name upon request

JUST OFF THE PRESS — Write today for your copy of this new Bulletin giving details about the Beating Unit. Ask for Bulletin No. EDJ-1079.

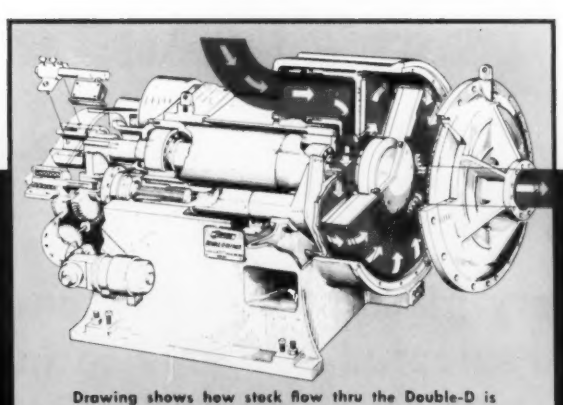


E. D. Jones & Sons Company
Pittsfield, Massachusetts
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

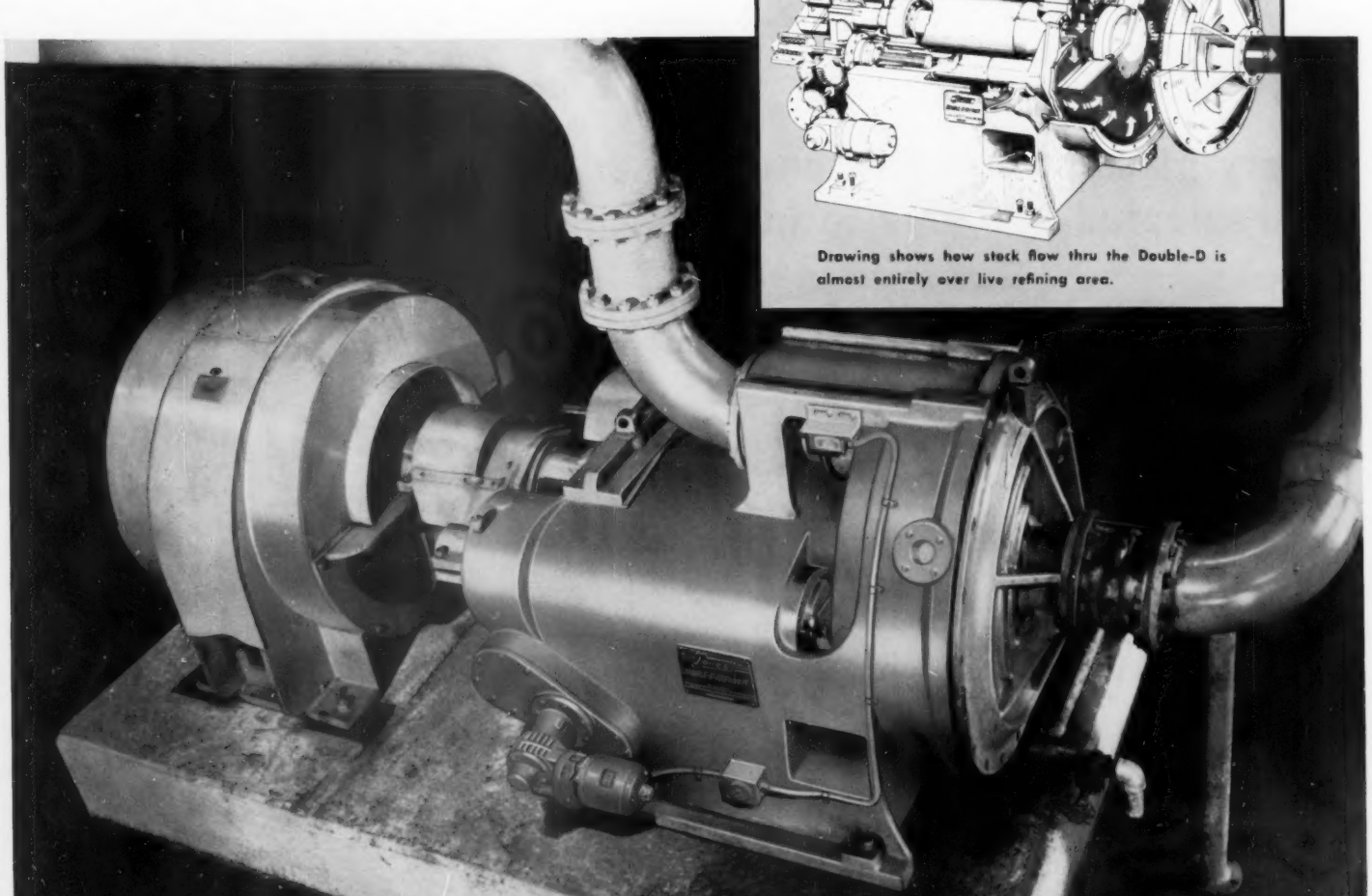
Jones

In Canada:
The Alexander Fleck, Ltd., Ottawa

This installation photo illustrates the compactness, economy of floor space and simplicity of piping of the Double-D Refiner.



Drawing shows how stock flow thru the Double-D is almost entirely over live refining area.



Over 2,200 square inches of live refining area

Jones DOUBLE-D with DOUBLE EQUA-FLO EFFECT

The only unit of its kind with **two stages of refining** in the same machine, the Jones Double-D actually does twice the work of conventional refiners, because it has double the refining area — 2200 square inches in the 42″ model.

With over 50 sold to date, the Double-D in two years use has more than lived up to experimental forecasts — in performance, efficiency, ease of maintenance and savings in horsepower.

Ask your Jones representative for details or write direct for Bulletin EDJ-1083.

E. D. JONES & SONS CO.
Pittsfield, Massachusetts

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

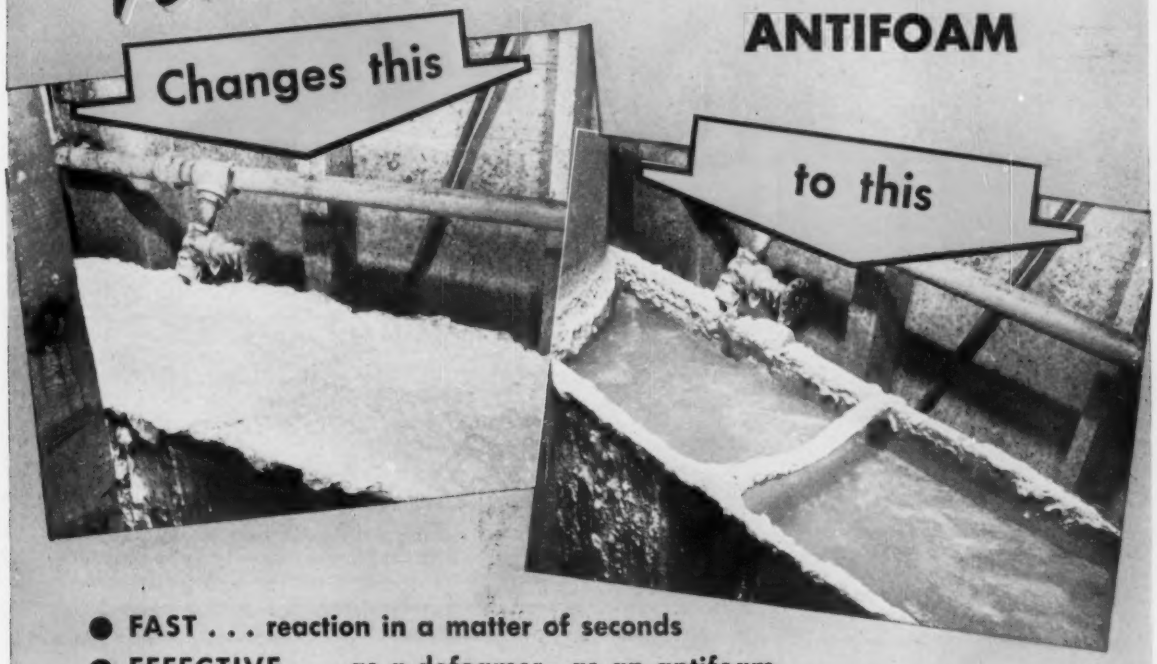
IN CANADA: The Alexander Fleck, Ltd., Ottawa

Export Agents:
CASTLE & OVERTON, INC.
New York 20, N. Y.

Foreign Licensees:
FRANCE Batignolles-Chatillon
SPAIN Gabilondo
ITALY de Bartolomeis
JAPAN Mitsubishi

Nalco 71-B

LIQUID ANTIFOAM



- **FAST . . . reaction in a matter of seconds**
- **EFFECTIVE . . . as a defoamer—as an antifoam**
- **FAR MORE ECONOMICAL . . . than paste or briquette**

Here is what happened when *liquid* Nalco 71-B was tried in a well-known mill plagued with the foaming problem of high-resin pulp.

At a cost of only *one-sixth as much* as the previous antifoam, the mill reported Nalco 71-B *eliminates all foam in seconds!* Sheet quality remains high, and production stoppages and slow-downs due to foaming have been eliminated. Fibre loss to sewers is extremely low and cleaning of cell room and screens has been substantially reduced. Small wonder the mill continues to use Nalco *liquid* 71-B in both primary and secondary pulp screen processes.

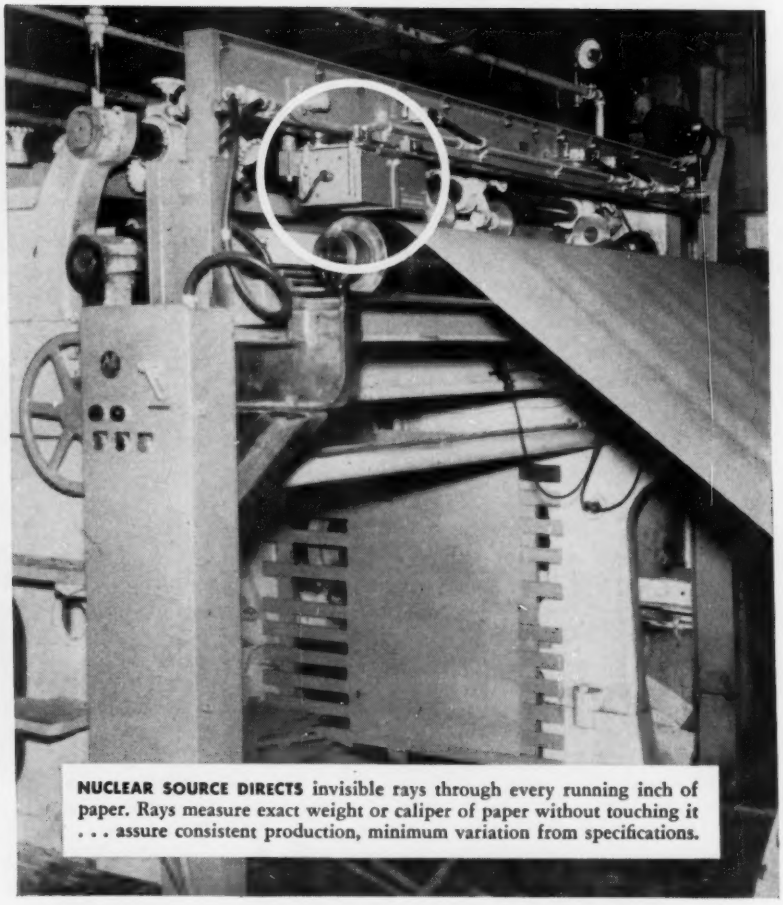
There is a whole series of Nalco antifoams designed to get *results* like this in your mill. Ask your Nalco Representative about them, or write direct to Nalco.

NATIONAL ALUMINATE CORPORATION
Telephone: POrtsmouth 7-7240
6213 West 66th Place • Chicago 38, Illinois
CANADA: Alchem Limited, Burlington, Ontario
NORTHWESTERN UNITED STATES, HAWAII and ALASKA
The Flox Company, Inc., Minneapolis 3, Minnesota
ITALY: Nalco Italiana, S.p.A. SPAIN: Nalco Espanola, S.A.
WEST GERMANY: Deutsche Nalco-Chemie GmbH

THE Nalco® SYSTEM...Serving the Paper Industry through Practical Applied Science

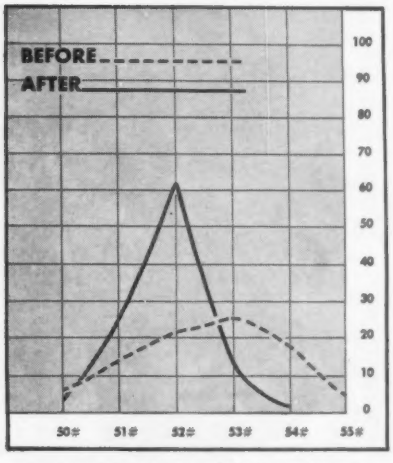
MACHINE TENDER adjusts target selector to proper weight specification for each order. Selector acts as constant guide for tender stationed at wet end.

EXCLUSIVE CONSOLE RECORDER features drawer-type construction for easy maintenance. Continuous recorder charts weight of paper during production, provides permanent record.



NUCLEAR SOURCE DIRECTS invisible rays through every running inch of paper. Rays measure exact weight or caliper of paper without touching it . . . assure consistent production, minimum variation from specifications.

NOW... HUG WEIGHT SPECIFICATIONS with Curtiss-Wright Control Systems



BEFORE, when hand-weighed tear sheets were used for control, variation was excessive. After installing Curtiss-Wright system, uniformity sharply increased.

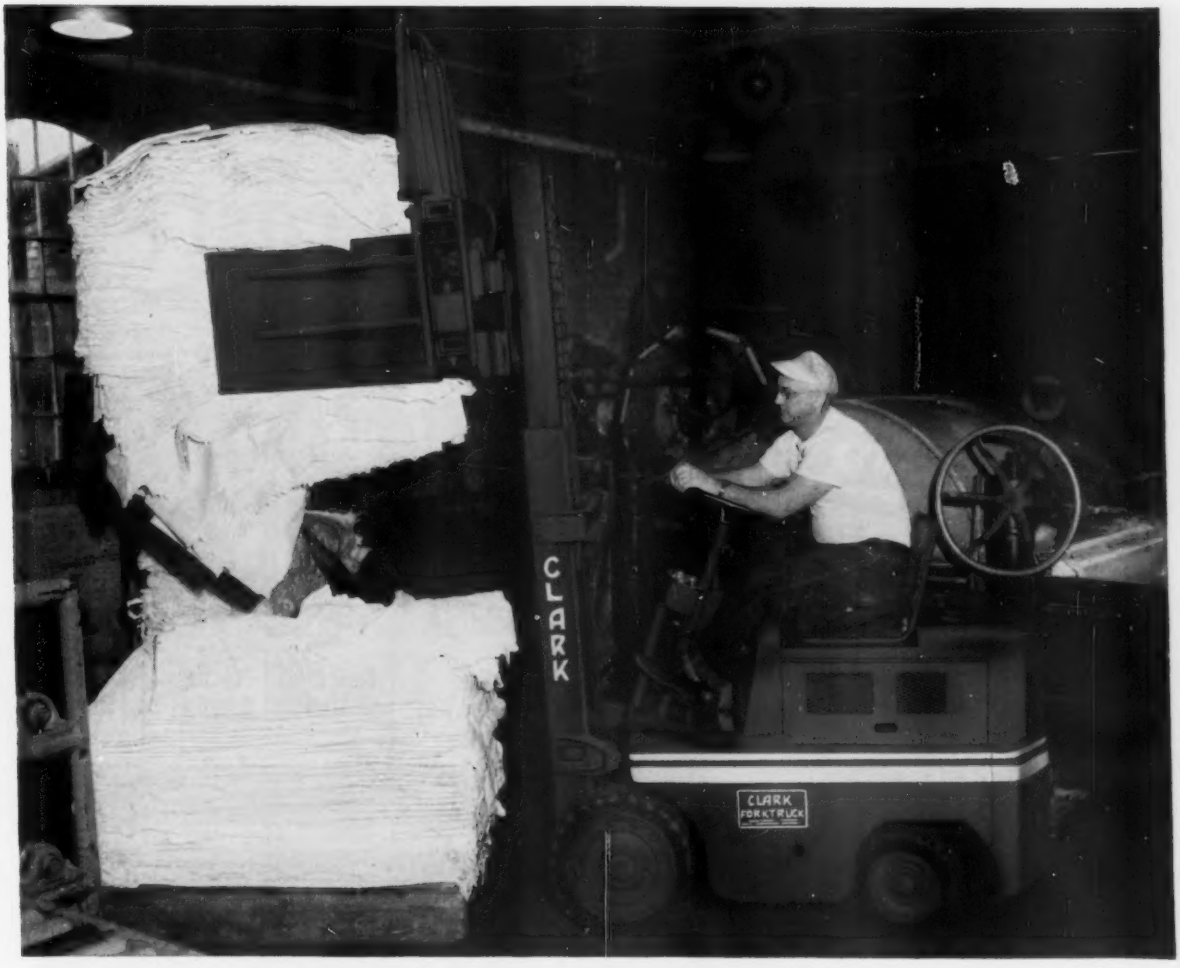
Field-proven Curtiss-Wright Basis Weight Control Systems monitor paper weight continuously, record actual production quality, warn immediately if variations occur—even trigger stuff gate controls. The result is roll after roll of on-weight paper, with important savings in production time, pulp and down-grading losses. Order changes can be made faster, and cross-sheet variation reduced as much as 50%. The large choice of mounting designs permits an installation tailored to your space requirements and budget. *For complete details, write Industrial Controls Dept., Curtiss-Wright Electronics Division, Carlstadt, N. J.*

WEST COAST REPRESENTATIVE:
Western Dynamics Co., 444 Dexter Horton Bldg., Seattle 4, Wash.

CANADIAN REPRESENTATIVE:
Electronics Associates, Ltd., 4616 Yonge St., Willowdale, Ont.

Systems Frieseke & Hoepfner

ELECTRONICS DIVISION
CURTISS-WRIGHT
CORPORATION • CARLSTADT, N. J.



At Fox River Paper Corporation—

CLARK TRUCK LOADS THE PULPER IN ONE PASS!

It used to take a man 10 to 15 minutes to load up for 50% stock. Now the job is done in a few seconds. Behind it all is a desire to get the most out of mechanical handling equipment.

"Use your Clark trucks whenever and wherever possible . . . in production, plant maintenance, storage or inter-plant traffic," Phil Dixson, Vice President in Charge of Manufacturing, tells his employees. This one principle has been the generator of many employee ideas for this Appleton, Wisconsin, paper company.

WHEN LOADING THE PULPER—why do it by hand when a Clark truck can load 1,000 lbs. of rag pulp in seconds. WHEN PUTTING NEW FELTS ON MACHINES—why get ladders when a Clark truck serves as a safe, portable scaffold. WHEN THE MILLWRIGHTS OVERHAUL EQUIPMENT—why use chain and hoists when a Clark truck can do the heavy lifting jobs. And so the list goes.

"Our employees know that the best way to take the work out of work is to do the job with a Clark truck," Mr. Dixson goes on to say. "Our fleet of 10 Clark trucks is kept busy on every job imaginable. We get more done and morale runs high."

How about your mill? Your local Clark dealer is the man to see. You'll find him listed in the Yellow Pages under "Trucks, Industrial."

CLARK® EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 201, Michigan

A BETTER BUY WITH LOCAL SUPPLY—*Genuine Clark Parts*

...for superior paper at no extra cost

Use OK BRAND Starches

the complete paper mill line

	Wet-End Additives	Press & Tub Sizes	Coating Adhesives	Calender Sizes
KEOJEL	✓			
KEOZYME		✓	✓	✓
KEOFILM				✓
KEOCHLOR		✓	✓	✓
KEOCOTE			✓	
PEARL	✓			
KEOGUM	✓			

There's an OK Brand product especially formulated for every paper mill operation requiring starches and adhesives ...and there's no extra cost for these top-quality OK BRAND products.

There's no extra cost for Hubinger Technical Service either. If your mill needs a special starch product, phone or write for a Hubinger paper-starch technical service representative. He will be glad to help you solve your starch problems. You'll find him OK too.

Manufacturing better products from corn for 75 years

THE HUBINGER COMPANY 1881 1956

Keokuk, Iowa

Warren-Dilts Air Doctor

now the product of

Dilts

The air doctor developed by the S. D. Warren Company is widely used throughout the world for aqueous coatings where coating weight control and smoothness is essential.

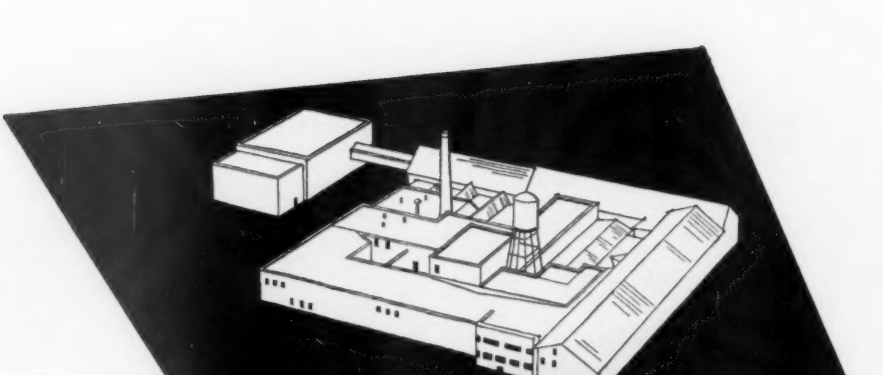
It is now being manufactured and sold as the product of Dilts, the Division of the Black-Clawson Company which produces complete coating installations.

Easy to install and operate, the Warren-Dilts air doctor is available in standard widths from 15" to 120". It will be provided as an integral part of new Dilts coating machines or as an auxiliary to your existing equipment.

The Dilts coating laboratory is equipped with an 18" air doctor for your experimental work.

For complete technical service on the application of the Warren-Dilts air doctor, contact Dilts, Fulton, N.Y. and ask for Spec. Sheet 111.

The BLACK-CLAWSON Company
DILTS DIVISION • FULTON, N.Y.



APPLETON, WISCONSIN

Confidence....in the paper industry

Foresight.....to anticipate changing conditions and requirements of the paper industry with new manufacturing facilities

MONTGOMERY, ALABAMA...
IN PRODUCTION SINCE OCTOBER, 1954

Appleton Wires are Good Wires

Appleton Wire Works, Inc.
GENERAL OFFICES, APPLETON, WISCONSIN

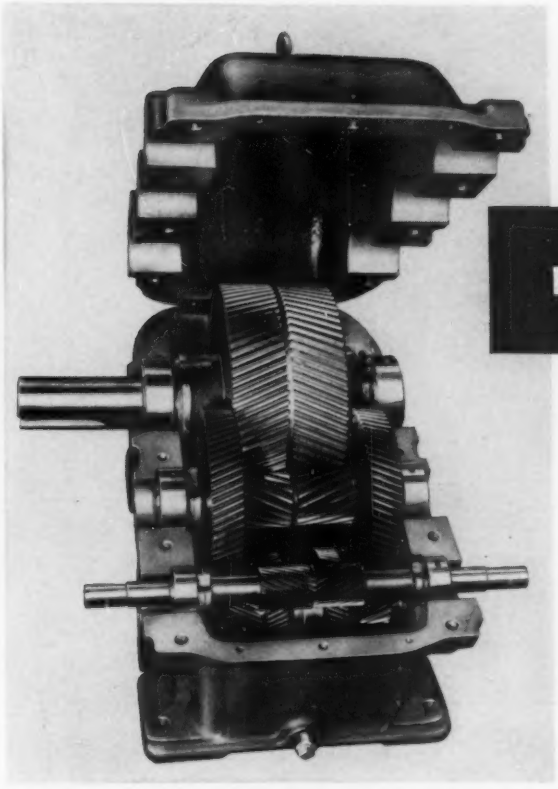


Photo shows triple reduction speed reducer, typical of Western Gear's high quality design and construction.

POWER TRANSMISSION TIPS

How To Use Service Factors Correctly In Selecting Gear Units

By Glenn Jorn

Industry Specialist-Forest Products, Western Gear Corporation

Experience in the gear industry has led to the adoption of a rule of thumb:

"The life of a gear unit increases in proportion to the cube of the service factor."

To illustrate this we have shown in the table below how much additional life can be gained with a small increase in service factor.

Original S. F.	Increased S. F.	Resulting Increased Life
1.0	1.25	Nearly Doubled
1.25	1.50	1.73
1.50	1.75	1.58
1.0	2.0	8.0

The first example in the table shows that you can nearly double the expected life of a gear unit by increasing your service factor from 1.0 to 1.25. The cube of 1.0 is still 1.0 and the cube of 1.25 is 1.95. The increased life shown in the last column is obtained with a very small increase in first cost.

Catalog HP ratings are for 8 to 10 hours' service per day under uniform loads. Manufacturers' catalogs show tables that classify your load and recommend service factors for most standard applications. If there is anything about your application that is unusual, or if downtime would be unusually costly, a more thorough study of service factors is warranted.

Gear units are designed to handle *momentary* overloads up to double the catalog rating without failing. The thermal rating is the load that the gear unit can continuously transmit under normal ambient conditions without overheating. The thermal rating should equal or exceed the HP transmitted before applying any service factor.

In well organized lumber, pulp and paper industries, shutdown periods are planned and scheduled beforehand. An unscheduled shutdown resulting from gear failure can be extremely costly in lost production, time and dollars. It can even become a safety hazard. Extra service factor is the least expensive insurance obtainable against such failures and loss.

A test stand is used only intermittently and may become obsolete in a few years. For this application strength is more important than wear, and a minimum service factor may be adequate. One precaution – if it is a variable speed test stand, be sure to size your components on the maximum torque condition and specify your maximum speed.

If every 0.1% efficiency is of great importance, remember that heavily loaded gear units are generally more efficient than lightly loaded gear units. This may call for a decrease in service factor.

Take advantage of the services of your Western Gear application engineer. He can make available to you experience accumulated since 1888 by Western Gear, a leader in the field of design and manufacture of mechanical power transmission equipment. A complete line of speed reducers is offered in all shaft arrangements, horsepowers and ratios to solve your gear drive problem efficiently and economically. Write on your letterhead for Bulletin 5402 which gives details and engineering data. Address General Offices, Western Gear Corporation, P.O. Box 182, Lynwood, California.

Bailey Recorder for receiving pneumatic and electric signals.

Measured Variables
% combustibles
combustion
conductivity
density
differential
draft
flow
liquid level
% oxygen
pH
position
pressure
ratio
smoke density
specific gravity
speed
temperature
vacuum

Pick any four, plug in, and record

Here is a receiver recorder, custom-built *by you* to meet your needs, no matter how changeable, how complex. On a single chart you can record any four measured variables—and interchangeable receivers permit new combinations almost at will.

Individual plug-in pneumatic or electronic receivers—and corresponding integrators—are interchangeable in the four identical frame slots. You can select any combination; even including two receivers and their two integrators.

Think what this can mean to you! Parts inventories are minimized; re-use of components keeps instrumentation costs economically low when cycle changes are frequent—and you can even tie in with your existing transmitters.

Ask for Product Specification E12-5.

PSS-1

ONLY BAILEY OFFERS ALL THESE ADVANTAGES IN A SINGLE RECORDER

- Pre-calibrated plug-in receiver units
- Up to four pneumatic or electronic receivers —or two receivers and two integrators
- Any four variables on one chart—easily read and interpreted
- A full year's ink supply at one loading
- Faster ordering—from stock
- Minimum inventory of parts
- Minimum instrument investment for process cycle expansion or alteration

BAILEY METER COMPANY

1037 IVANHOE ROAD

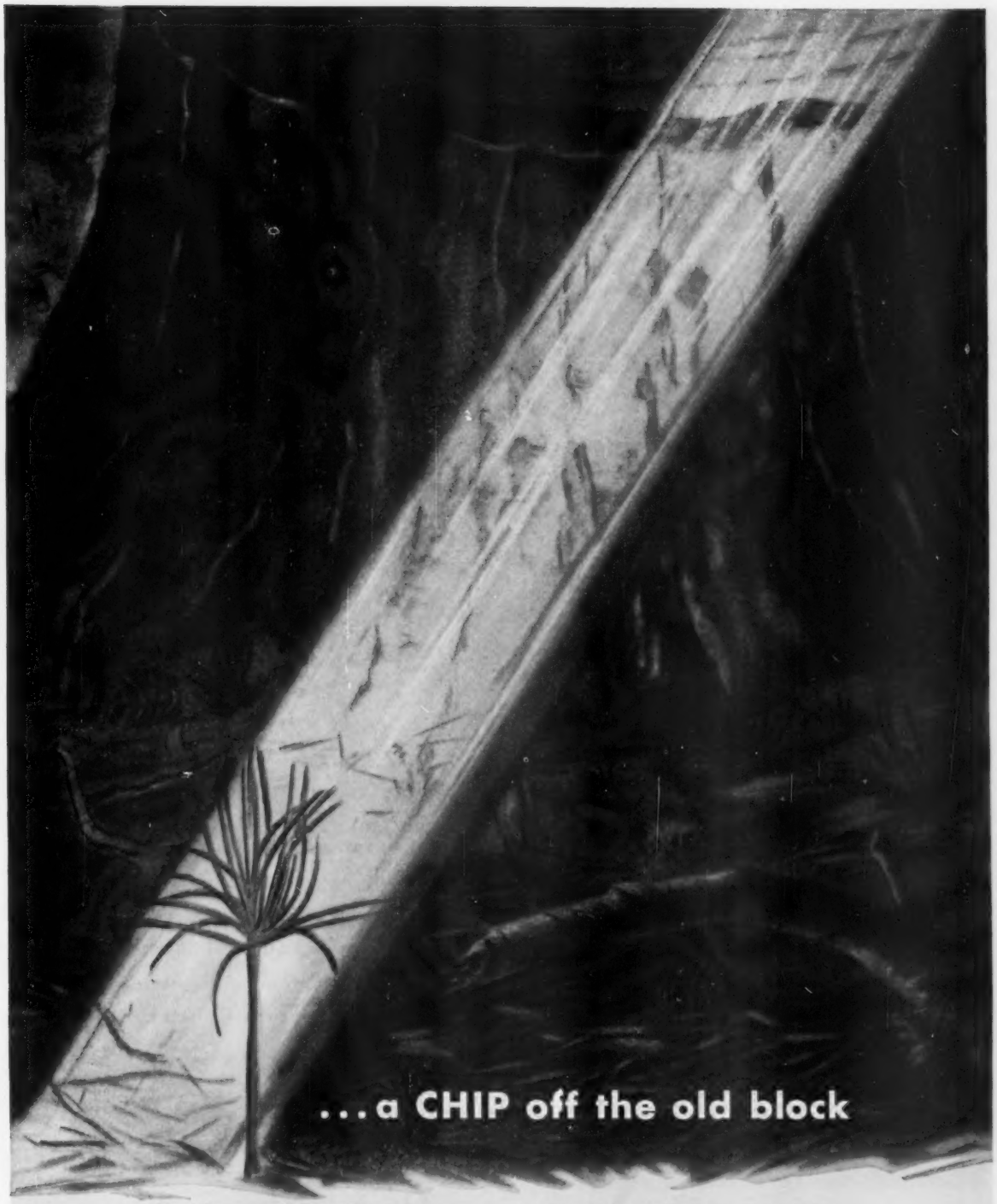
CLEVELAND 10, OHIO

Controls for Power and Process

BAILEY METERS

Controls for

TEMPERATURE
PRESSURE
GAS ANALYSIS
FLOW LEVEL
RATIO DENSITY



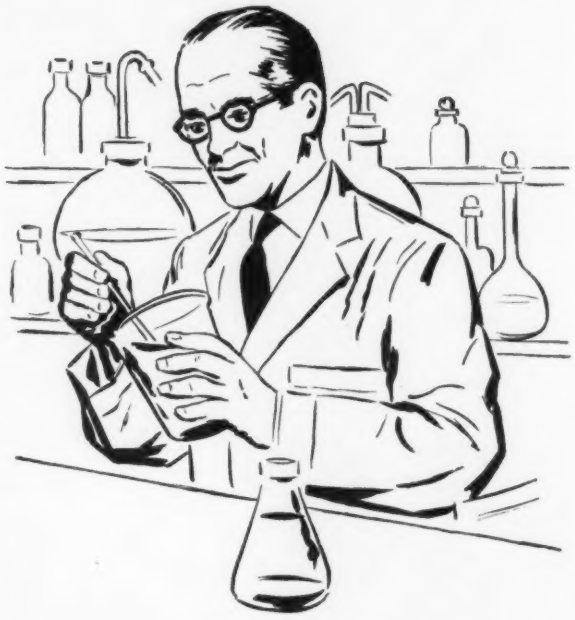
Weyerhaeuser Timber Company renews forest crops by providing continuous natural reforestation. Constant growth is accomplished with seed supplied from blocks of trees left standing to re-seed adjacent harvested areas. The enlightened practice of seeding or planting burned-over land with nursery-grown seedlings also assures healthy harvests for future generations.

Forest life is renewable and continuous. Weyerhaeuser Timber Company, while supplying woodpulp to paper and allied industries, methodically works with Nature's growing cycle in perpetuating forest crops, thus achieving a sustained yield of pulpwood—in a continuing cycle.

WEYERHAEUSER

At ORISKANY...

Chemistry is putting extra life into Felts!



New chemical treatments actually increase fibre strength and resistance to wear . . . improve finish and drainage

Chemistry is working wonders in our laboratories at Oriskany to produce more durable felts. We've blended synthetic and wool fibres in hundreds of combinations to test against standards for finish, drainage and strength. We've developed, in our testing, formulas that build into the fibres completely new physical and chemical properties. These tested and proven characteristics are prolonging felt life on today's highest-speed machines . . . and they're meeting specific requirements for finish and drainage!

Exclusive new T-10 formula protects fibres against bacterial damage

Coupled with our intensive research on fibre strength, we have produced a chemical treatment that protects felts permanently against the harmful effects of bacterial action. Continuing experiments, both in our laboratories and in the field, indicate that we are making important contributions to paper-making progress in this respect.

Talk to the man from Oriskany

You can count on our experienced sales engineers for sound, helpful advice on your felt problems. They are thoroughly familiar with the technical progress we are making in our laboratories, and they bring you news of our design improvements that can help you make better paper products . . . faster . . . at less cost!

First choice—because they last

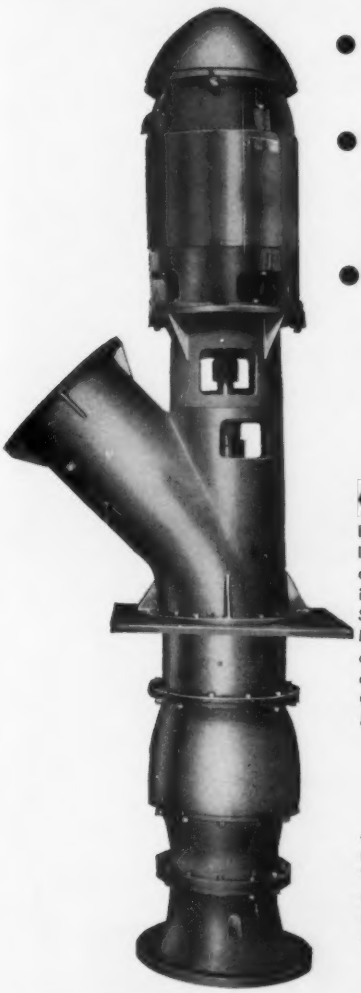
Oriskany

WATERBURY FELTS

H. WATERBURY and SONS COMPANY • ORISKANY, NEW YORK

Bingham "EVEN-FLO" PUMP

DISCHARGES WITH NON-PULSATING FLOW REGARDLESS OF VARIATION IN SUPPLY!



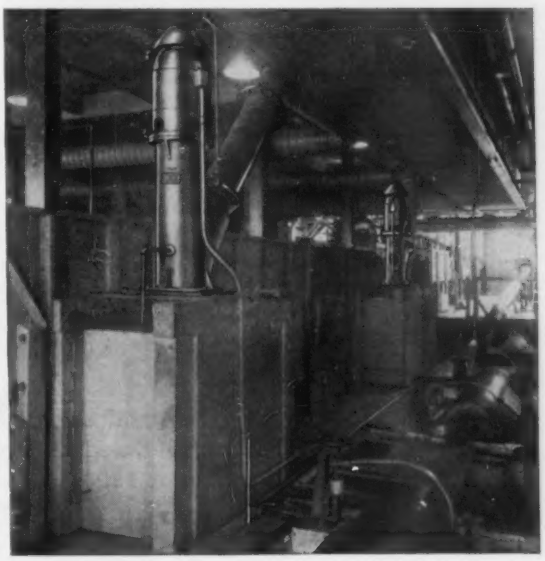
- Cannot Become Airbound!
- Operates in Small Sumps with Little or No Submergence
- Maintains Constant Liquid Level in Sump with Varying Supply

The BINGHAM "Even-Flo" Pump discharges pumpage with an even, non-pulsating flow, regardless of whether it is pumping at full or fraction of capacity. The *evenness* of discharge is not affected by surges in supply to pump sump. Maintains constant liquid level in the pump sump, regardless of variation in incoming supply.

The "Even-Flo" pump also handles liquids containing entrained air at the same uninterrupted, even rate of flow, without becoming airbound.

Available for any capacity. Call your nearest Bingham office for full information, or write for Bulletin 36.

Bingham "Even-Flo" Pumps are being used effectively in the Pulp and Paper industry for such services as: *Primary and Secondary Screen Transfer • Seal Pits for Barometric Legs • White Water and Stock Chests • Mill Sewage and Waste Liquor Sumps • Sludge Collecting Chests • Acid Sumps • Fan Pumps • Washers • Save-Alls*



A battery of "Even-Flo" Pumps installed for screen transfer service. The non-pulsating, even rate of discharge, which is a characteristic of these pumps, increases flat screen production as much as 30%.

Bingham SINCE 1921

DOUBLE VOLUTE PUMPS RADIAL BALANCE

BINGHAM PUMP COMPANY

***General Offices:* 2800 N.W. Front Avenue, Portland 10, Oregon**

***Factories:* Portland, Ore. • Vancouver, B.C., Canada**

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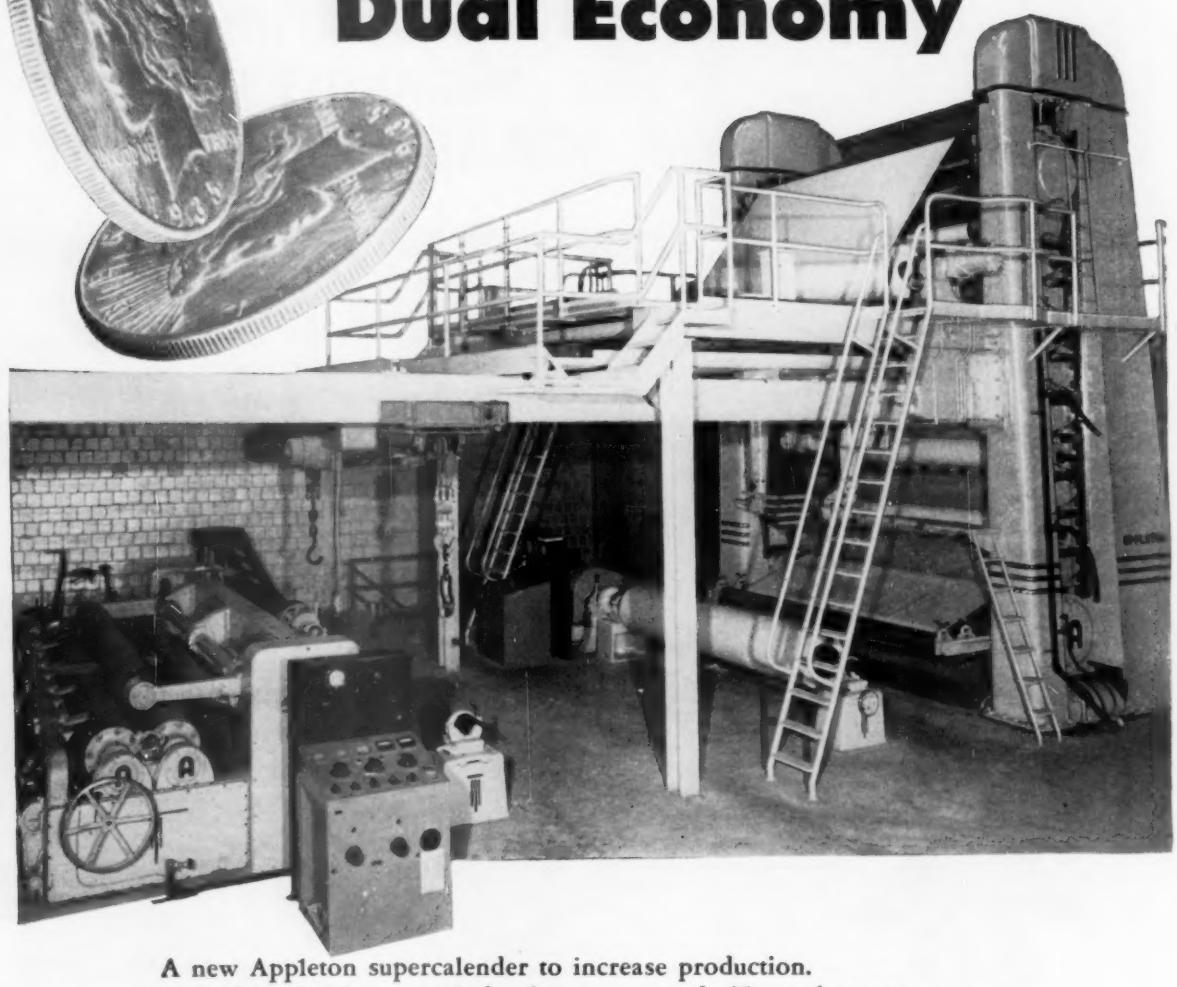
Appleton Twins For Dual Economy



A new Appleton supercalender to increase production.
A modern Appleton rewinder for more speed. Team them up for *twice* the efficiency to cope with today's higher costs.

Appleton supercalender illustrated: 150" 12 roll, has shaftless unwind arrangement and automatic roll handling from elevated storage platform. Operates at 1800 f.p.m.

Appleton rewinder illustrated: 150" 2 drum, also ruggedly built, with low center of gravity to assure vibration-free operation. Operates at 3500 f.p.m.

APPLETON MACHINE COMPANY
APPLETON WISCONSIN

CUSTOM-BUILDERS OF PULP, PAPER & TEXTILE MACHINERY · CALENDERS · FINISHING ROLLS · REWINDERS · SCREENS · DECKERS

With a Capital Q

Quality is an over-worked word, we admit.
Yet, quality is *what* we're *after* in the paper industry.

This is why we make a full-time job of
maintaining a standard of production quality that keeps
EASTEX products a stride ahead of the field.

Whatever you make . . . you can make it
better with Eastex pulp, board and paper.

Evadale, Texas
Telephone Silsbee, Texas
Evergreen 5-3711

Eastern Sales Office
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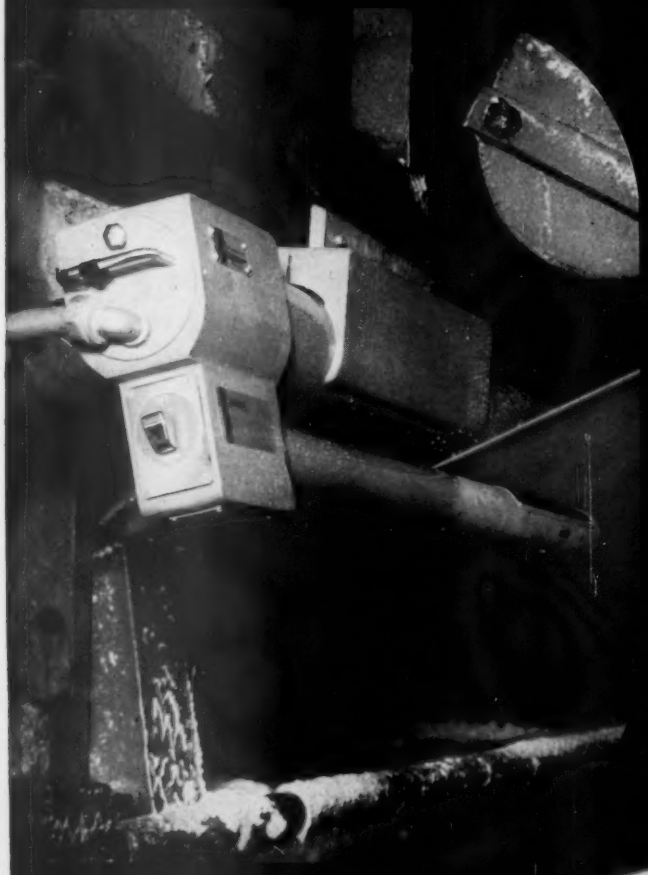
Telephone OXford 7-2980

Western Sales Office
1003 Builders Bldg., Chicago, Illinois
Telephone RAndolph 6-1068

EAST TEXAS
Pulp and Paper Company

Now--HUYCK INTRODUCES TO

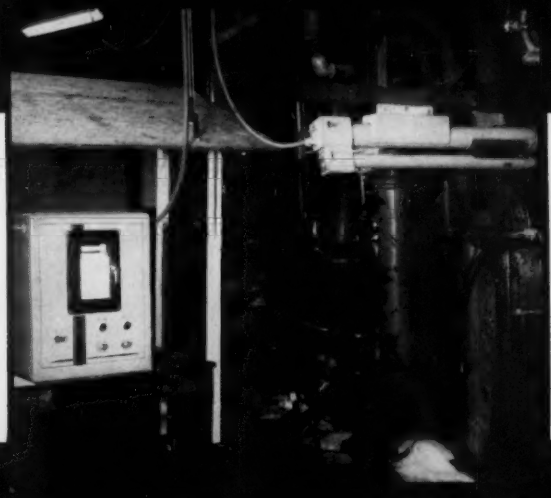
Another Huyck *plus service* for paper-makers . . . *New* wonder-working BETA RAY GAUGE measures moisture content of felts *in operation* on paper machines!



Photo, courtesy of Erving Paper Mills, Erving, Mass.

Beta Ray Gauge in use by Huyck to measure the moisture content of running felts on a paper machine.

We look forward to greeting YOU at—
37TH ANNUAL CONVENTION
AMERICAN PULP and PAPER MILL SUPERINTENDENTS ASSOCIATION
JUNE 12 to 14
LAKE PLACID CLUB
ESSEX COUNTY, N.Y.



Photograph showing the simplicity and ease of installing the Beta Ray Gauge on the press section.

Photo, courtesy of Erving Paper Mills, Erving, Mass.

NEW *ATOMIC AGE* INSTRUMENT *MODERN FELTMAKING!*

Always in the past, it was necessary for papermakers to rely on indirect methods of measuring the moisture content or water removal ability of felts. Because this was true, the water removal performance of felts could not be measured accurately. Nor was it possible to determine the rate and extent of loading of felts during operation.

Noting the great strides the paper industry was making in using the Beta Ray Gauge for basis weight control, Huyck quickly grasped the significance of the instrument, seeing how it could be applied to the press section problems of papermakers.

Because of Huyck's discovery of this *new* use for the Beta Ray Gauge, it is now possible to measure the moisture content of running felts *precisely and quickly* while they're in operation on paper machines. Moreover, the measurements taken by this wonder-working, atomic age instrument permit the direct and immediate observation of the effect of modifications of felt design . . . adjustments of press roll pressures or suction and the functioning of felt cleaning equipment.

The application of this *new* approach in a few representative paper mills is leading to advances in felt design which will enable all users of *new* Huyck felts to meet the *new* requirements resulting from development trends in the paper industry.

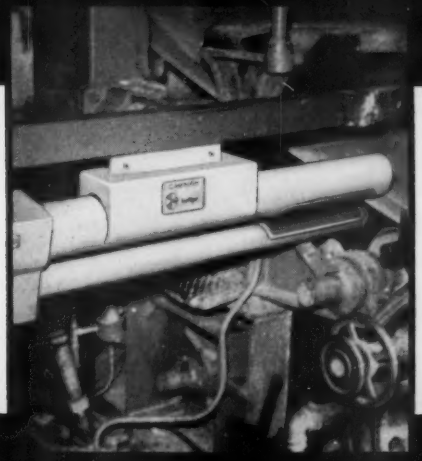
This *newest* of Huyck's *plus services* to papermakers paves the way to more favorable operating conditions, assuring better production at lower felt cost per ton. Your Huyck Sales Engineer or Field Service Engineer will be glad to tell you more about it.

NEW! HUYCK FELTS

FIRST IN QUALITY . . . FIRST IN SERVICE

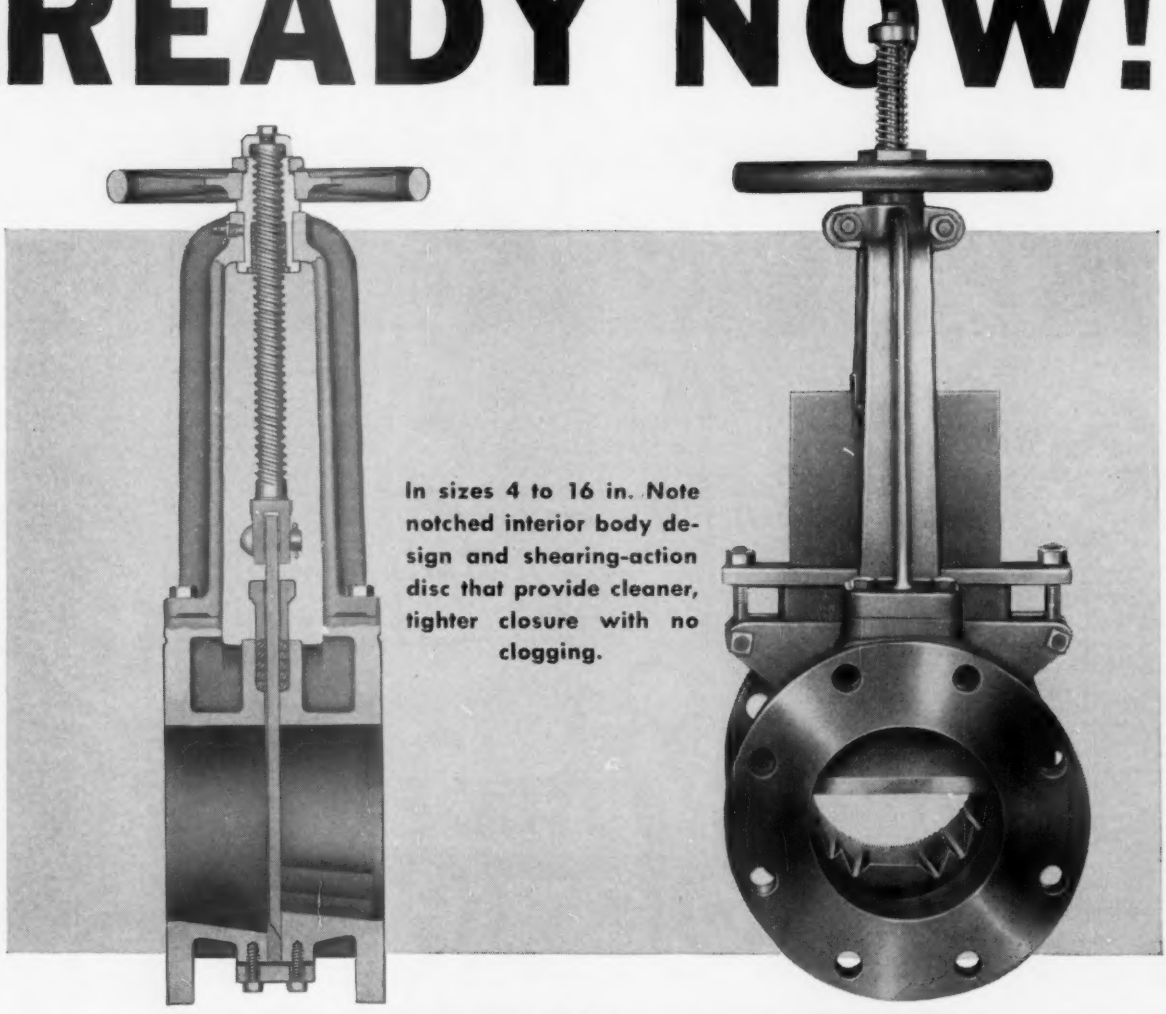
F. C. HUYCK & SONS • Established 1870
Rensselaer, New York • Aliceville, Alabama
IN CANADA: KENWOOD MILLS LTD.
Arnprior, Ontario • Established 1918

Huyck engineer reading Beta Ray Gauge to determine felt and press section efficiency.
Photo, courtesy of Erving Paper Mills, Erving, Mass.



Closeup showing Beta Ray Gauge in standby position between measurements.
Photo, courtesy of Finch, Pruyn & Co., Glens Falls, N. Y.

READY NOW!



In sizes 4 to 16 in. Note notched interior body design and shearing-action disc that provide cleaner, tighter closure with no clogging.

New Crane all-stainless pulp stock valves in weight-saving, cost-saving, narrow face-to-face design

Now you can get *all* the features of the famous Crane pulp stock valves in a new design that saves costs by saving weight.

These valves are now available in cast 18-8 SMo stainless steel with a standard narrow face-to-face dimension (the 12-inch size, for example, is only 8 inches face-to-face, instead of 14 inches). Size for size, they are approximately 35% lighter in weight, and, therefore, considerably lower in cost. Yet, because they are cast, rather than fabricated, they lose nothing in rigidity or dimensional accuracy. You can use them in all your lightweight, stainless steel stock lines where corrosion is a problem.

Like all Crane pulp stock valves they have a shearing-action disc and notched body design that provide cleaner, tighter closure with no clogging. Fast-acting stem threads speed closing. A removable flat bottom plate permits quick, easy cleanout.

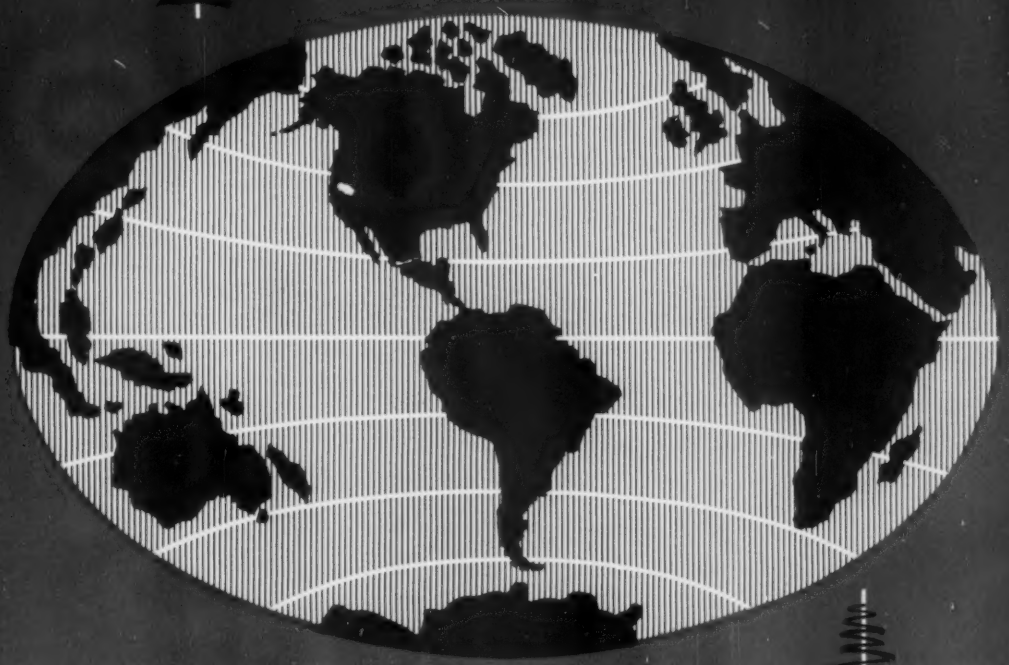
Ask your Crane representative for the new folder AD-2156 describing these new valves, and the complete line of Crane pulp stock valves in materials for every stock service. Or, write to address below.

CRANE VALVES & FITTINGS

PIPE • KITCHENS • PLUMBING • HEATING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

WOOD PULP
PAPER



Offices and representatives in 60 cities in the United States, Europe, Latin America, Africa, and Asia

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BULKLEY DUNTON PAPER CO., S.A.
BULKLEY DUNTON CELLULOSE EXPORTS, INC.
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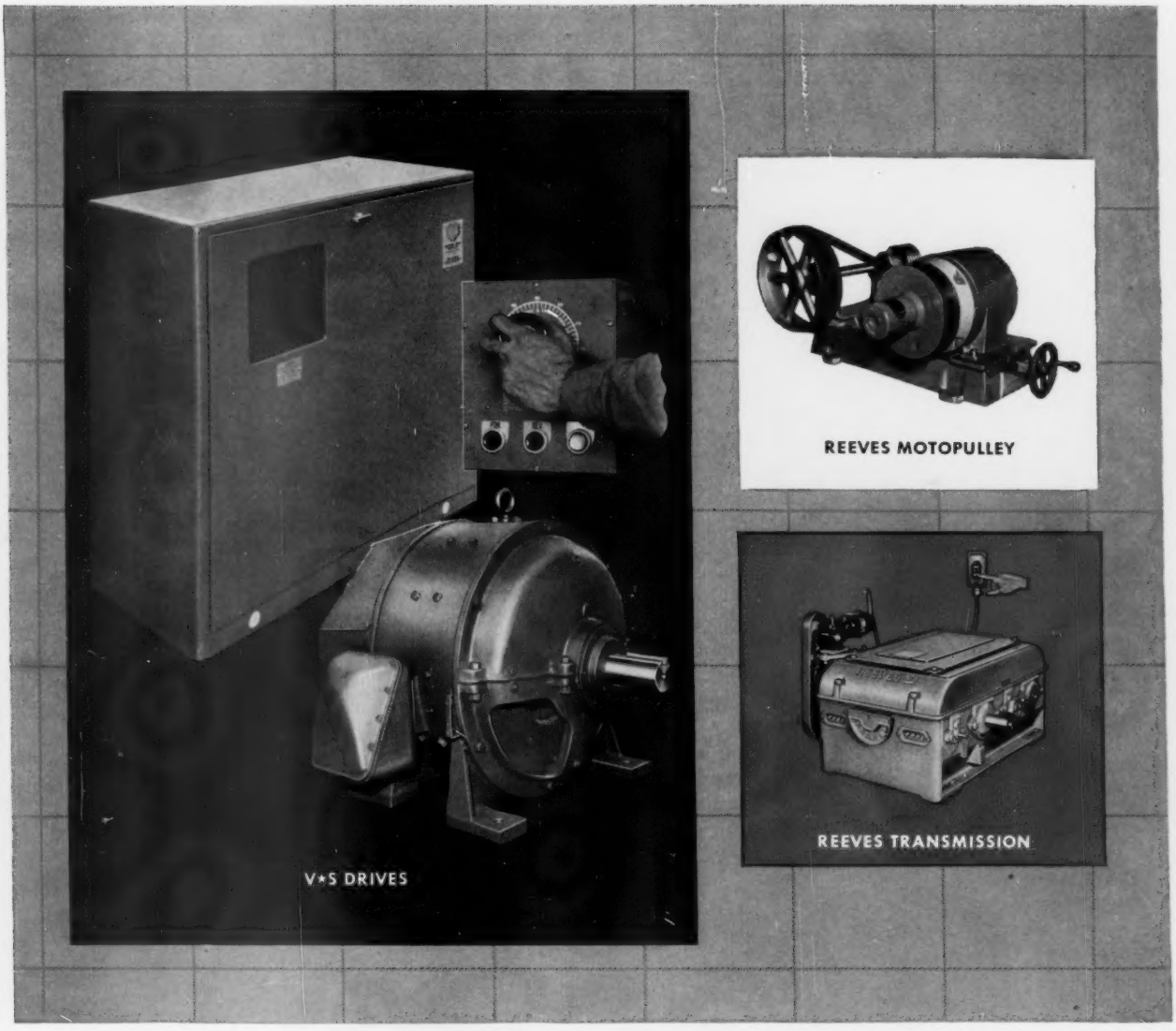
In New England—CARTER RICE STORRS & BEMENT

BULKLEY-DUNTON
ORGANIZATION
295 MADISON AVENUE, NEW YORK 17, N. Y.



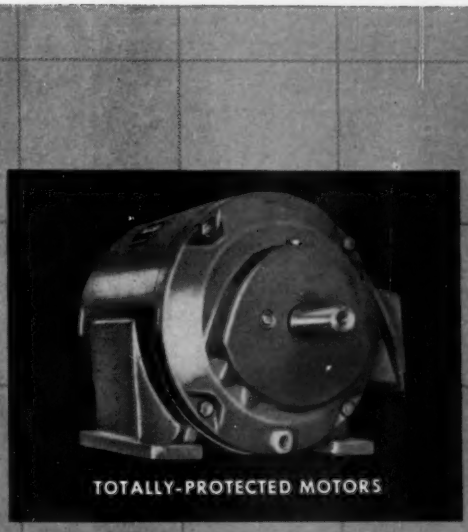
● WIDENING THE HORIZONS OF

Automation is the key to greater production of more goods and services at lower cost. The Tools of Automation can be applied profitably in a countless number of individual industries.

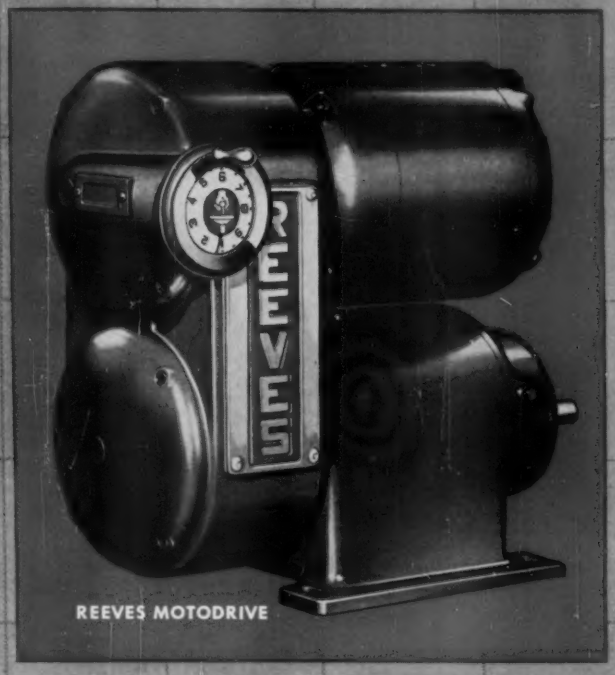
Reliance can provide *you* with valuable engineering assistance which can help secure the advantages of automation.

Our Tools of Automation consist of electric motors, variable-speed drives and controls.

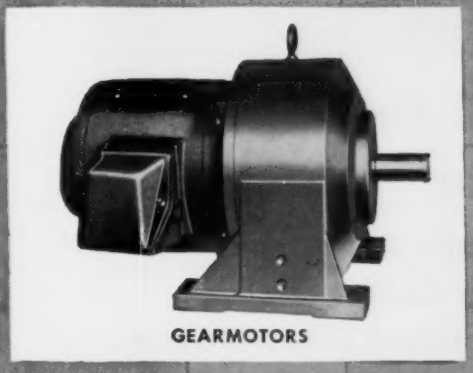
RELIANCE



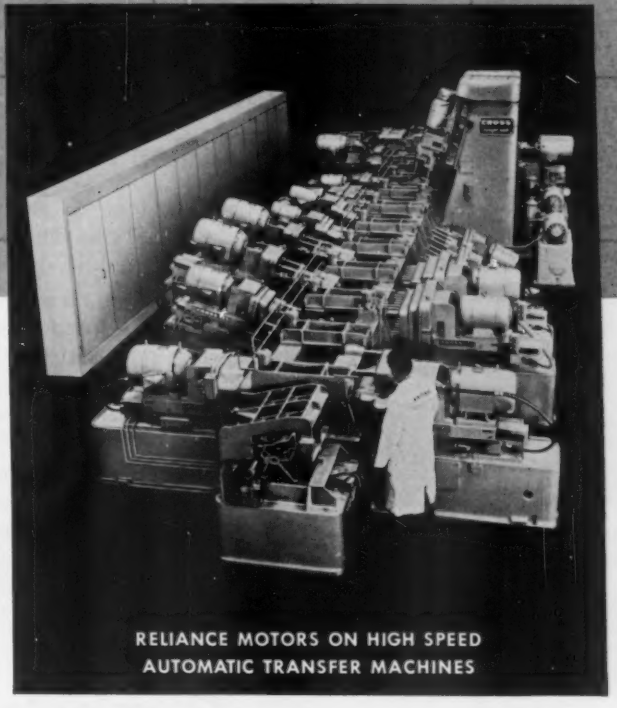
TOTALLY-PROTECTED MOTORS



REEVES MOTODRIVE



GEARMOTORS



RELIANCE MOTORS ON HIGH SPEED AUTOMATIC TRANSFER MACHINES

AUTOMATION

Application of these tools ranges from a single motor to multi-motor drives for highly complex production lines, where materials are processed into finished products in one continuous operation.

The world's largest manufacturer devoted exclusively to the production of quality motors and drives is ready to help you widen the horizons of automation in your plant.

Bulletin No. A-1555-B gives further details.

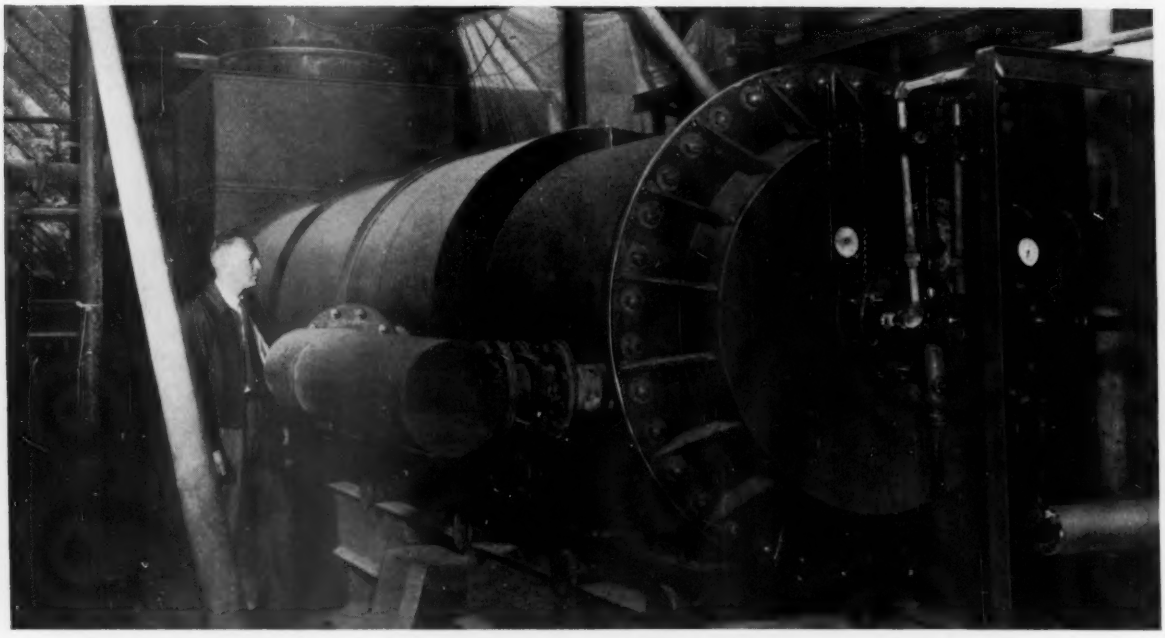
A-1519

ELECTRIC AND ENGINEERING CO.

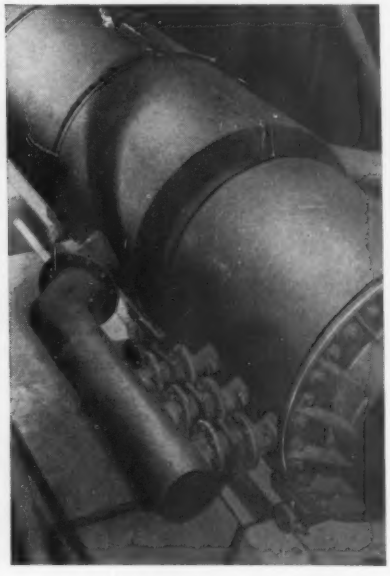
DEPT. 415A, CLEVELAND 10, OHIO

Canadian Division: Welland, Ontario • Reeves Division: Columbus, Indiana

Sales Offices and Distributors in Principal Cities



This 15-ton-per-day Chemipulp-KC sulphur burner operates at 18.5% SO_2



The secondary air admitted through the manifold shown, is preheated in the space between the outside of the burner and the surrounding jacket. This preheated air assists in combustion and in maintaining a high percentage of SO_2

Chemipulp-KC Jet Type Sulphur Burner

- **Compact • Efficient • Long Life**
- **Low Maintenance Costs**
- **Fast Start-Up—Instant Shut-Down**
- **Handles Any Type of Sulphur**

In the new Chemipulp-KC Burner the molten sulphur is sprayed into the burner as a fine mist. The secondary heated air is then introduced in several stages, resulting in clean operation and long service life.

Because of the small mass, the burner quickly reaches its maximum efficiency temperature of 2100° F., minimizing the production of SO_3. This burner operates efficiently at all SO_2 gas concentrations between 12% and 18½%. At its operating temperature of 2100° F. the bitumen in the dark sulphur is completely burned, so that dark sulphur as well as bright sulphur is efficiently burned. Shut-down is instantaneous.

This unusually compact unit is now available in capacities of 1, 2½, 5, 12, 15 and 25 tons per day, and each different size burner operates efficiently at loads of 25% to 150% of rated capacity. Both installation and maintenance costs of this new burner, which is a development of the KIMBERLY-CLARK CORPORATION Research Program, are considerably lower than rotary burners and combustion chambers of equal capacity.

Chemipulp Process Inc.

Woolworth Bldg. Watertown, N. Y.

Associated with Chemipulp Process Ltd., 403 Crescent Bldg., Montreal

Pacific Coast: A. H. Lundberg, Orpheum Bldg., Seattle • Lundberg-Ahlen Equipment Ltd., 146 E. Broadway, Vancouver

Look what COLOR can do

Cure the common cold? Well, we won't claim *that*. Appealing as colored tissues are, they aren't medicine. But color — the right colors — can help sell your paper products faster.

Our technical staff will be glad to help you find the right shades and the most economical formulations for the paper products you sell. You'll see how much faster they move off the shelves! Don't be left behind in the trend to colored paper products. Write E. I. du Pont de Nemours & Co. (Inc.), Dyes & Chemicals Div., Wilmington 98, Del.

DU PONT
REG. U. S. PAT. OFF.

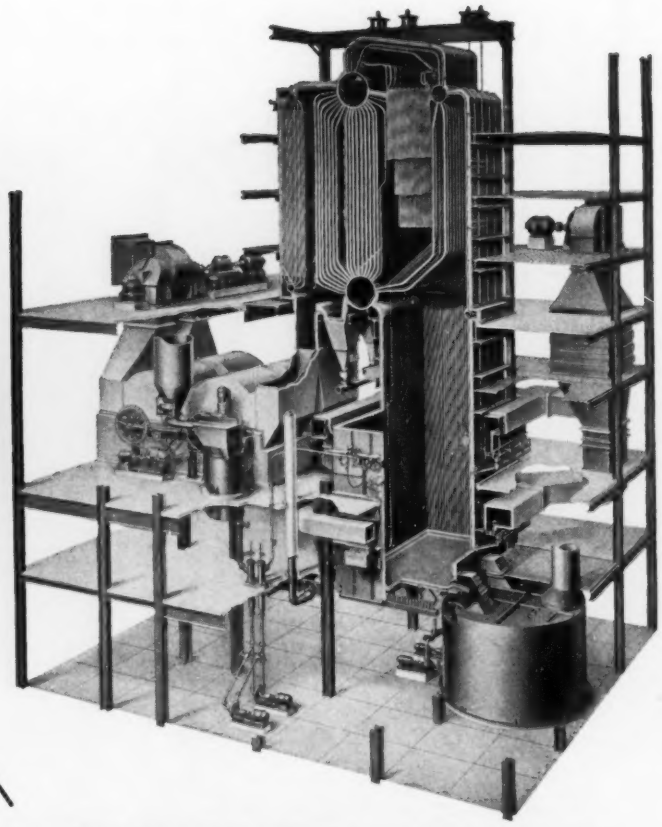
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Du Pont Dyes

Color sells more . . . for your customers and you

THE

C-E RECOVERY UNIT



it's ahead AUTOMATICALLY

Yes—the C-E Recovery Unit *is* ahead automatically because it is available with automatic controls that take the guesswork out of recovery unit operation. While combustion controls, flow regulators and the like have long been standard equipment on many power boiler installations, their adaptation to the special problems involved in the burning of black liquor have been an elusive goal. Their successful application to the C-E Recovery Unit is a service-proved fact.

By accurately and automatically adjusting the flow of air to the flow of fuel in just the right proportions, the C-E Recovery Unit has a sensitive response to change in black liquor flow—a response very difficult to duplicate through manual means.

The result?—More efficient black liquor combustion, less combustible matter in flue gas and more steam per ton of black liquor solids burned. This means, of course, an attendant reduction in steam costs.

Another equally important result is that the operator is no longer required to perform the tedious and time-consuming task of trying—sometimes not too successfully—to balance the air flow against an ever-changing black liquor supply. Relieved of this assignment, his time is available for other duties.

The application of automatic control to the C-E Recovery unit is still one more indication of the continuing efforts on the part of C-E to make a good product better.

Other C-E Equipment — In addition to the C-E Recovery Unit, Combustion Engineering is in a position to furnish any type of boiler, fuel burning and heat recovery equipment for supplying the steam needs of the paper mill: flash drying and calcining equipment for the recovery of lime; and pressure vessels for digestion and process. Through this wide range of C-E products, the advantages of single-contract responsibility are available to your plant.

COMBUSTION ENGINEERING

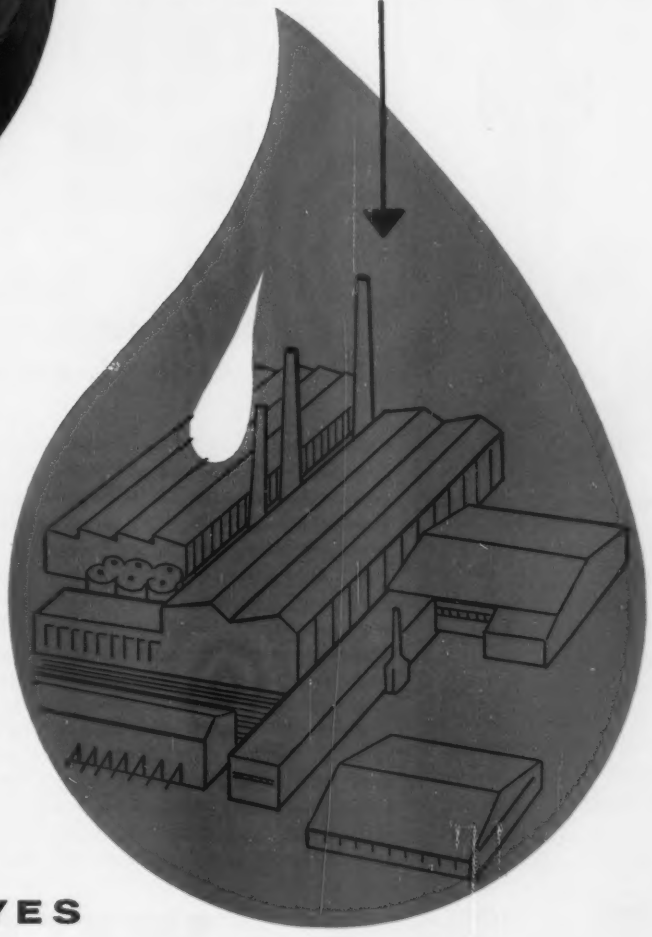
Combustion Engineering Building • 200 Madison Avenue, New York 16, N. Y.

CANADA: COMBUSTION ENGINEERING-SUPERHEATER LTD.

B-800-A

STEAM GENERATING UNITS; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; DOMESTIC WATER HEATERS, SOIL PIPE

HOW NATIONAL KNOW HOW PAYS OFF IN YOUR MILL



Our laboratories should be *your* first step in developing new colors. That way, running colored lines can be less of a problem than you may think. With proper laboratory formulas they often are neither too costly nor too difficult to handle in your mill. National Aniline paper technicians can give you worthwhile help on methods best suited to your operating conditions.

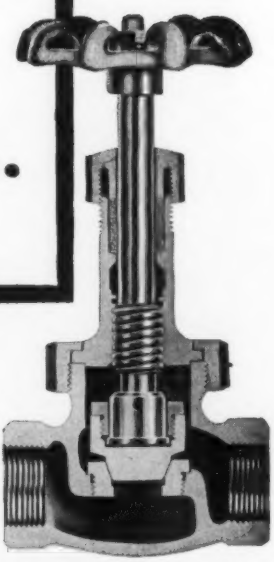
This is part of our complete color service to paper mills. We invite you to take full advantage of it.

NATIONAL® PAPER DYES

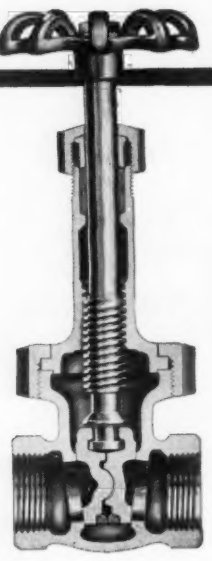
NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION • 40 RECTOR ST. NEW YORK 6, N. Y.

Boston Providence Philadelphia Chicago San Francisco Portland, Ore. Greensboro Charlotte Richmond Atlanta Los Angeles Columbus, Ga. New Orleans Chattanooga Cleveland Toronto

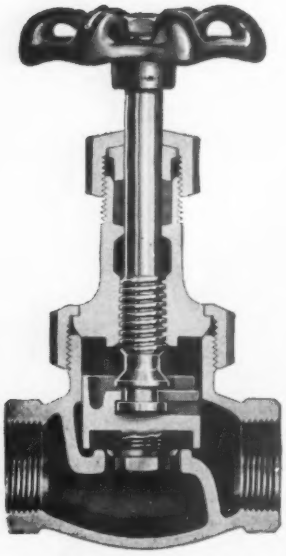
Walworth bronze valves...



Walworth No. 225P Globe Valve
500 Brinell Seat and Disc



Walworth
No. 29 Gate Valve



Walworth No. 95 Globe Valve
Re-New-Disc

built to give dependable trouble-free service on all recommended jobs

Walworth No. 95 Bronze Globe Valves (Angle Type: No. 96) are recommended for service where throttling is not required. They are rated at 150 psi working steam pressure, 500F; 300 psi cold water, oil or gas. The improved renewable disc and lock-on, slip-off disc holder — an original Walworth development—saves time and trouble. This valve can be repacked under pressure when fully opened. All parts are designed to give maximum service and strength.

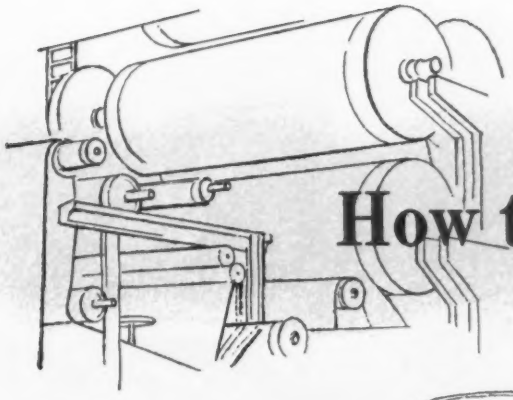
Walworth No. 29 Bronze Gate Valves are rated at 200 psi working steam pressure, 550F; 400 psi cold water, oil and gas. These valves have rising stems and integral seats. Sizes 2-inch and smaller have union bonnets; sizes 2½ and 3-inch have bolted bonnets. Valves up to and including ¾-inch have solid wedge discs; 1-inch and larger have split wedge discs. These valves can be repacked under pressure when fully opened.

Walworth No. 225P Bronze Globe Valves (Angle Type: No. 227P) are rated at 350 psi working steam pressure, 550F; and 1000 psi non-shock service on cold water, oil and gas. The stainless steel, plug type seat and disc — heat treated to 500 Brinell — can be closed on sand, slag, scale and similar floatage, without injury to the seating surfaces. They are the longest wearing, TOUGHEST bronze valves you can buy.

For full information about Walworth Quality Bronze Valves, see your Walworth distributor, or write:

WALWORTH
valves and fittings

60 EAST 42nd STREET NEW YORK 17, N. Y.



How this Paper Mill

made *ONE* drum of defoamer

do the work of *TWO*

The efforts of the Nopco technical service men do not always stop with supplying effective defoamers at competitive prices. Very often their wide experience with all types of pulp and paper mills can suggest money-saving ways of using these defoamers.

☆ ☆ ☆

In one well known mill, for instance, the Nopco technical man was able to bring about important savings with his practical suggestions for improving both the handling and distributing of the defoamer to the points of use.

The result: at the year's end this mill found they had cut their defoamer consumption exactly in half, at a clear saving of $6000 a year!

Nopco, pioneer in paper chemicals, knows well that paper and pulp mills vary so widely in their operating conditions that no one defoamer will work equally well for all. By proper selection from our Nopco KF* Series of paste defoamers, or our Nopco LD* Series of liquid defoamers, we are confident there is one defoamer which will produce foam-free paper at high speeds for *your* mill. Why not give the Nopco paper specialist the chance to study your operation carefully and make recommendations? His experience may quite possibly show you an extra saving like the one cited here.

Nopco Chemical Co., 316 Water St., Harrison, N. J.

*Reg. U.S. Pat. Off.

NOPCO

PLANTS: Harrison, N. J. • Cedartown, Ga. • Richmond, Calif.

LOWER YOUR PIGMENT COSTS

Save Money

by using

"ICEBERG" & "ICECAP K"

*Anhydrous Aluminum Silicates (Kaolin type clay) Replacing TiO_2

By using approximately three pounds of "ICEBERG" or "ICECAP K" pigment to replace one pound of TiO_2, the following saving can be realized. It is important to keep the ash content the same by cutting back on other fillers such as coating clay or filler clay when increasing the amount of brightening filler.

Saving Per Pound TiO_2 Eliminated
Approximate Delivered Cost Per Pound

Burgess "Iceberg" Pigment . . . .032¢ — Coating Clay . . . . . .015¢
Burgess "Icecap K" Pigment . . .04¢ — TiO_2 . . . . . .24¢

ITEM	COST *"Iceberg"*	*"Icecap K"*
Burgess Product (3 lbs.)	.096	.120
Coating Clay (eliminate 2 lbs.)	.030	.030
Total Cost	.126	.150
TiO_2 (1 lb. eliminated)	.240	.240
SAVING	.114	.090

Low Cost Brightening Agents Replace costly white pigments in—

- Bleached manila lined board
- White patent coated board
- Ground wood and/or sulphite furnishings

Write for working samples and prices . . .

Burgess Pigment COMPANY

Mines and Plants: Sandersville, Georgia

EXECUTIVE SALES OFFICES: P. O. BOX 145, SANDERSVILLE, GA.
West Coast: L. H. Butcher Co., San Francisco & Los Angeles, Cal.
Warehouses: Jersey City & Trenton, N. J.; Saylesville, R. I.

- **HYDROUS AND ANHYDROUS ALUMINUM SILICATE PIGMENTS**
- **KAOLIN CLAYS**

All world markets get PUGET PULP

Converting mills use

PUGET PULP

in making paper for corporate reports to stockholders

PUGET PULP is bleached sulphite—clean and clear enough for the finest product, strong enough for the hardest use.

PUGET PULP is produced in steadily expanding amount in one of the most scientifically up-to-date mills in America.

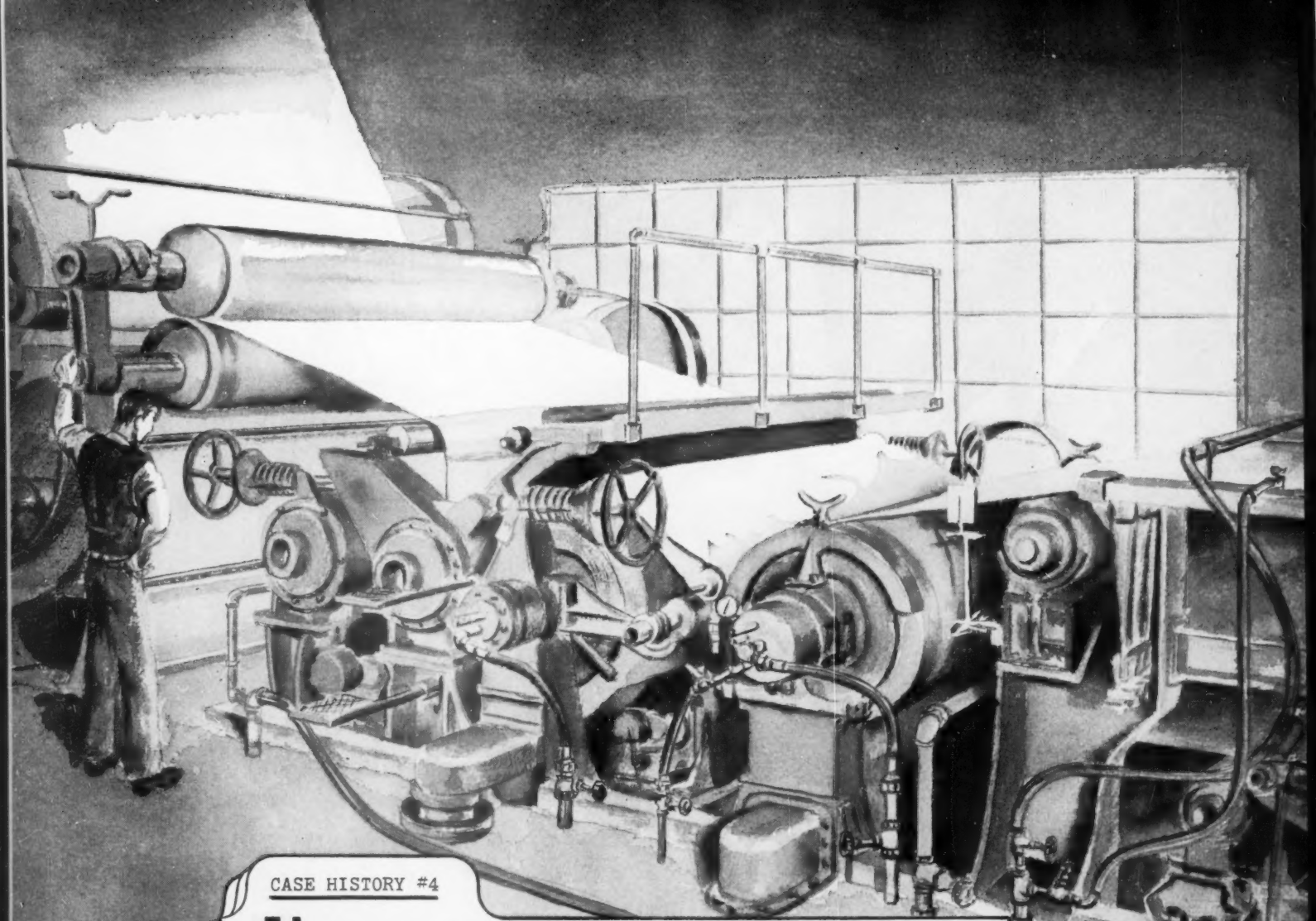
PUGET PULP is made expressly for the market. Converting mill users are assured of a steady supply from a single non-competitive source.

Gear your operations to **PUGET PULP.**

With output now exceeding 450 tons daily, more PUGET PULP is available for the market

PUGET SOUND PULP AND TIMBER COMPANY

BELLINGHAM • WASHINGTON



CASE HISTORY #4

How To Get Improved Finish, Felt Life on Dual Press

A large midwestern mill, running high-grade coated book stock for use in national magazines, was searching for a press felt which would improve sheet finish by eliminating suction shell marks, and extend the life then being obtained on a dual suction press. Synthetic-content felts had been tried with poor results, inferior finish having offset gains made in felt life.

This problem was given to an Albany Felt sales engineer, who called in a service engineer to make a comprehensive machine survey. The information obtained, together with data from our files on similar problems, was carefully studied by the Albany design staff and a trial felt suggested. Our recommendation was a built-up, bulky Super Press style with 19% synthetic-content, that was subsequently run on the first suction press.

RESULTS: This felt not only resisted suction shell marks, thereby producing a greatly improved finish, but also permitted an increase of speed to 1200-1300 feet per minute. In addition, felt life improved considerably, with subsequent runs of this felt actually averaging an increase of 33%.

For improved felt performance on your machines, call in your Albany Felt Sales Engineer. His analysis of your problems, together with the efforts of the industry's top team of Service Engineers, Designers, Research and Laboratory Specialists, will bring you the famous "blue line" felts you need to help produce *more saleable tons per day!*

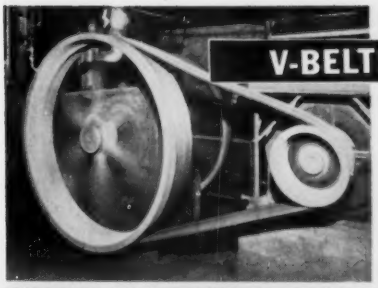
ALBANY FELT COMPANY

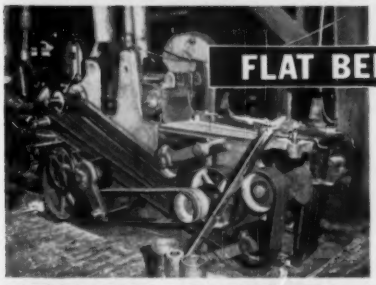
"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"

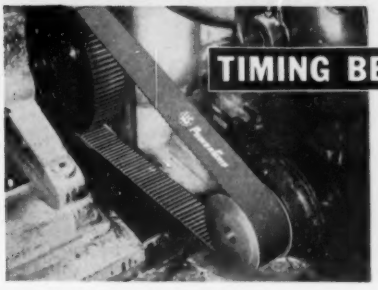
Main Office & Plant, Albany, N.Y. Other plants: Hoosick Falls, N.Y., N. Monmouth, Me., St. Stephen, S. C., Cowansville, P.Q.

A complete line of

Flat Belts, V-Belts and Sheaves and "TIMING"® Belts and Pulleys



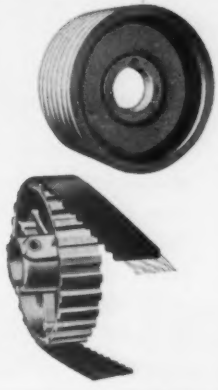




● Whatever your power transmission requirements, "U. S." can supply them. With "U. S." distributors and warehouses strategically located across the country, you are assured of immediate *service* and shipment.

U. S. Rubber power transmission technicians are always ready to help you. Get in touch with one of our selected distributors or any of our 27 District Sales Offices or write us at Rockefeller Center, New York 20, N. Y.

MULTIPLE V-BELTS • F.H.P. V-BELTS
SHEAVES • FLAT BELTS AND BELTING
SPECIAL PURPOSE BELTS
PowerGrip **"TIMING" BELTS AND PULLEYS**



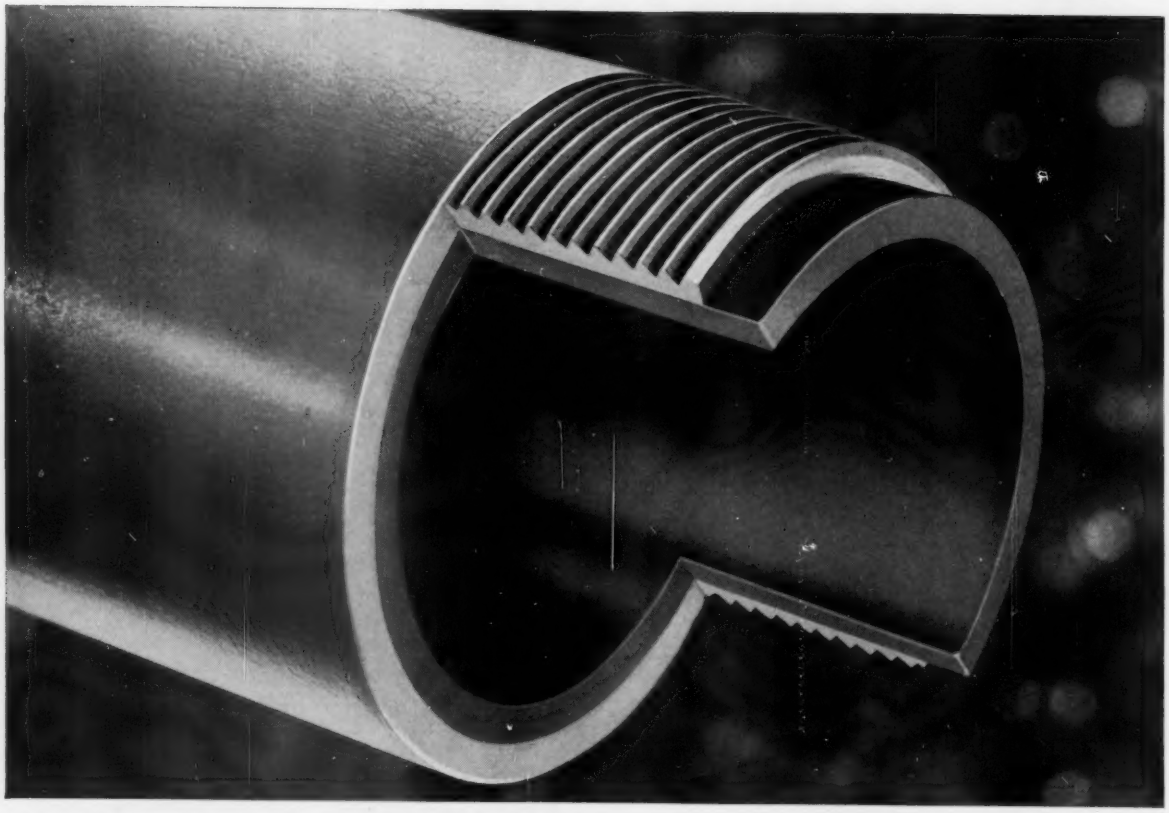
V-Belt Sheaves and "TIMING" Belt Pulleys

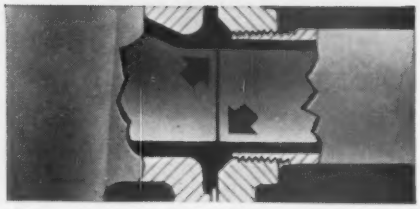
are tested for static balance and engineered to deliver the high durability and efficiency that are built into every "U. S." Belt.

Mechanical Goods Division

United States Rubber

DOW





Liquid never touches metal in saran lined pipe even at a flanged connection like this.

You can see why Saran Lined Pipe cuts corrosion costs

It's made of corrosion-resistant saran swaged into rigid non-bursting steel . . . liquid never touches metal in these installations

Here's your best way to convey acids, alkalies and other corrosive liquids—saran lined pipe, fittings, and valves. This modern piping is corrosion resistant . . . forms snug, leakproof joints . . . is available for working pressures up to 150 psi. Fittings and valves are also available in steel for working pressures to 300 psi.

Installation costs are low because saran lined pipe can be cut and threaded in the field with available pipe fitter's tools. Its rigidity means few supporting structures are needed.

Saran lined pipe has an outstanding record of trouble-free performance in many industries. THE DOW CHEMICAL COMPANY, Midland, Michigan.

Saran Lined Pipe Company
2415 Burdette Avenue
Ferndale 20, Michigan
Dept. SP626E

Please send me information on saran lined pipe, fittings and valves.

Name_____ Title_____

Company_____

Address_____

City_____ State_____

Saran Lined Pipe is Manufactured by The Dow Chemical Company, Midland, Michigan.

you can depend on DOW PLASTICS

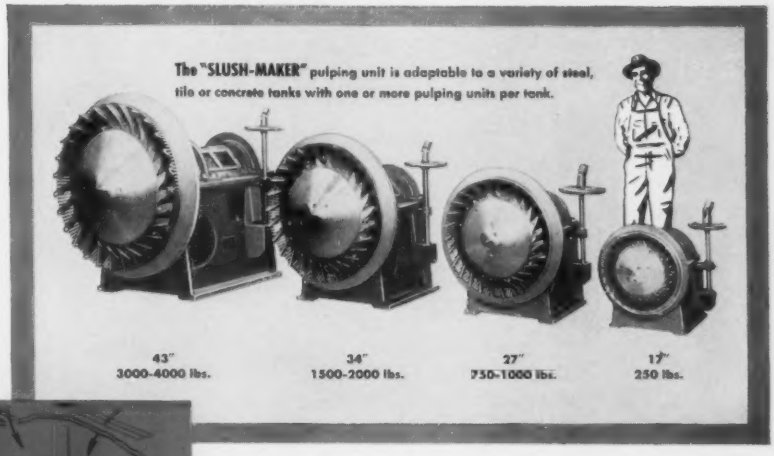
DOW

MORDEN SLUSH MAKER®

Patented

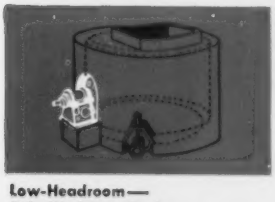
For Pulping

The Morden "Slush-Maker" can be used for either continuous or batch operation. Whichever method is used, there is a rapid defibering.



These thumbnail sketches show some of the many tanks that can be designed to suit specific mill requirements.

Dry-End Continuous Broke Pulper with Single Rotor



Low-Headroom—Side-Discharge Tank

Special Single-Wall Cylindrical Tile Tank

Standard Double-Rotor Tank for Larger Capacity

Special Cylindrical-Top Steel Tank

Dry-End Continuous Broke Paper Pulper with Double Rotor

Standard Tank with Special Charging Port

Advantages

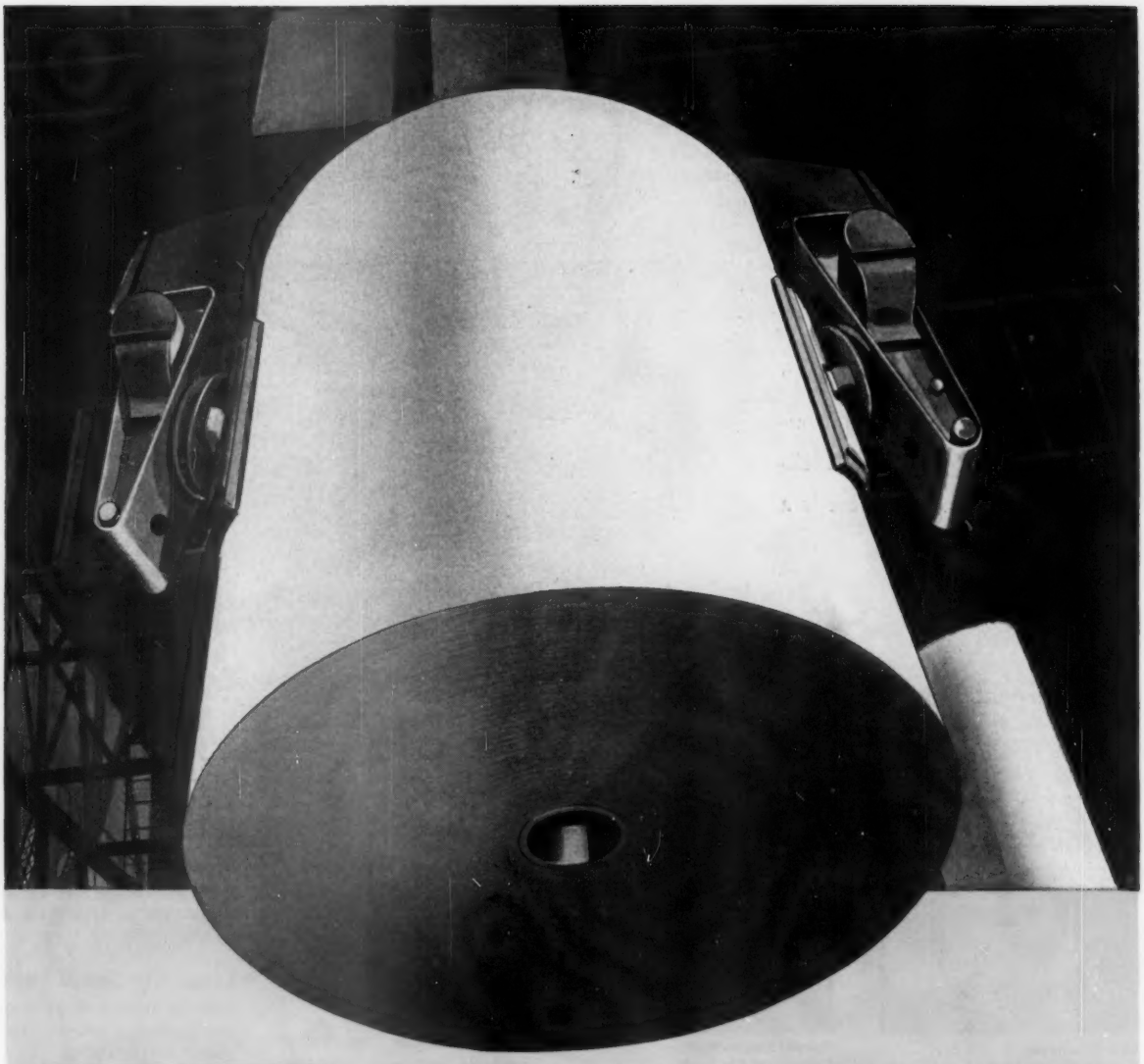
- **Full Bales or Slabs** can be charged by hand, lift truck or conveyor.
- **Dry-End Broke** can be handled continuously, directly under the paper machine.
- **Wet-Strength Papers** are readily reclaimed with the "Slush-Maker".
- **Rapid Pulping Action** permits greater production per day.
- **Operation** can be batch or continuous.
- **Vigorous Circulation** thoroughly mixes the colors and chemicals in less than a minute.
- **Completely Cleared Stock** reduces amount of beating and jordaning treatment required after pulping.
- **Tramp Materials** will not damage or bind the pulping unit.
- **Side-Mounted Pulping Unit** permits low-headroom applications, simple drives.

Northeastern States Representatives:
ORTON CORPORATION, Fitchburg, Massachusetts
Midwestern States Representatives:
DAN B. CHAPMAN, Appleton, Wisconsin
Southern & Southeastern Representatives:
BRANDON SALES, INC., Greenville, S. C.

MORDEN
STOCK PREPARATION EQUIPMENT
MACHINES COMPANY

3420 S. W. MACADAM

PORTLAND, OREGON



YESTERDAY . . . production limited by machine capacity

TODAY . . . an open end on production—and profits

Today, in mill after mill across the nation, new Puseyjones developments in papermaking machinery have lifted production ceilings, rolled back the profit-making horizons.

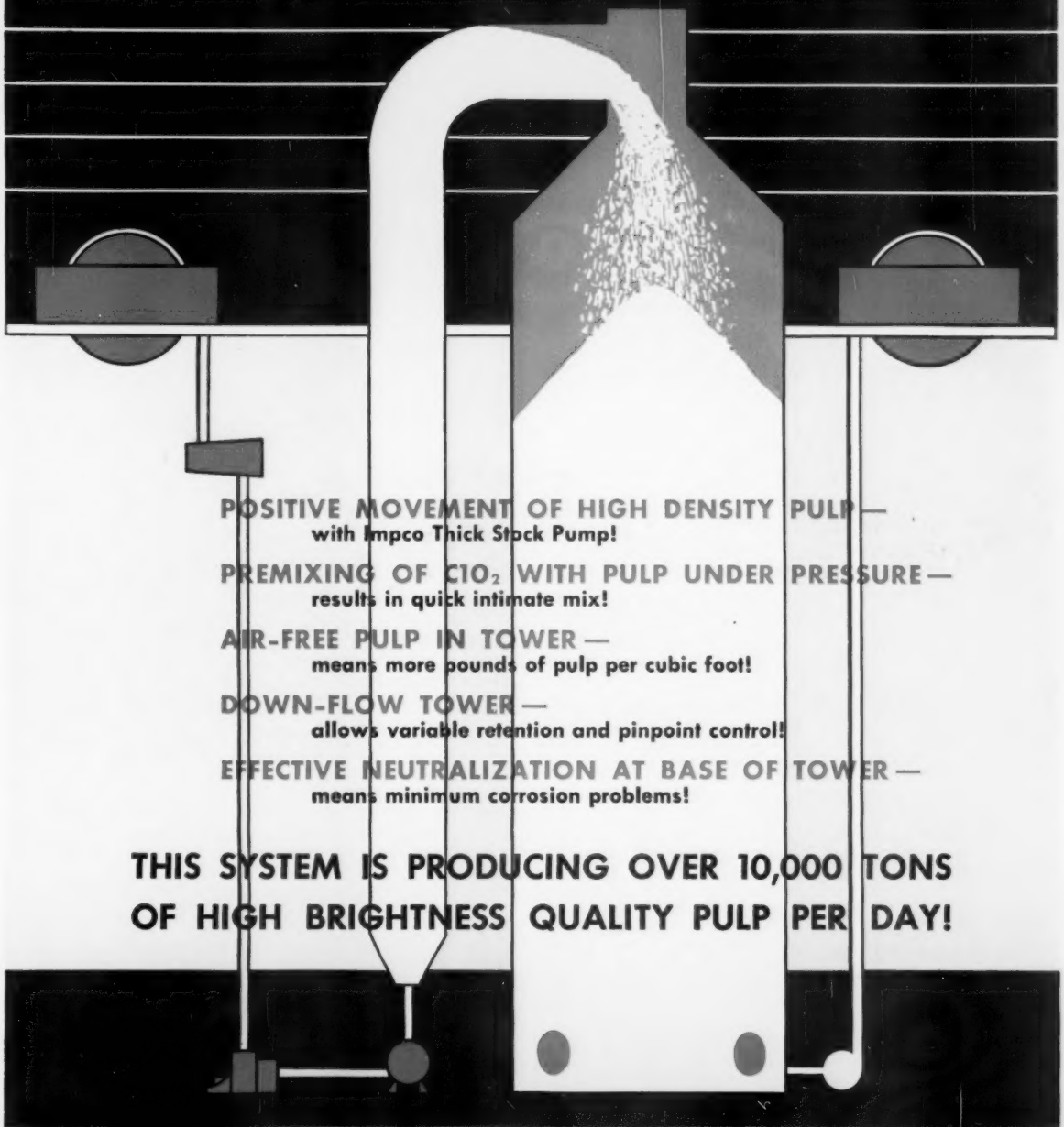
Setting the pace for modern, top quality, high speed, large tonnage production are a host of Puseyjones' developments, such as the "Rapi-Drape" Wire Changer to slash wire-changing costs . . . Flow Spreader, to spread stock uniformly . . . Simplex Press Part for control of nip pressure . . . Stream Flow Vat System for larger volumes of stock at lower consistencies . . . and the improved Steam Joint that permits repair or replacement without shutting down the Dry Part.

If your ceiling on production and profits needs raising, write or call Puseyjones engineers today.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

THE PUSEY AND JONES CORPORATION
Established 1848 : : Builders of Paper-Making Machinery
Fabricators and Welders of all classes of Steel and Alloy Products
Wilmington 99, Delaware, U.S.A.

Impco chlorine dioxide bleach system



POSITIVE MOVEMENT OF HIGH DENSITY PULP —
with Impco Thick Stock Pump!

PREMIXING OF ClO_2 WITH PULP UNDER PRESSURE —
results in quick intimate mix!

AIR-FREE PULP IN TOWER —
means more pounds of pulp per cubic foot!

DOWN-FLOW TOWER —
allows variable retention and pinpoint control!

EFFECTIVE NEUTRALIZATION AT BASE OF TOWER —
means minimum corrosion problems!

THIS SYSTEM IS PRODUCING OVER 10,000 TONS OF HIGH BRIGHTNESS QUALITY PULP PER DAY!

IMPCO®

IMPROVED MACHINERY, INC.
NASHUA · NEW HAMPSHIRE

Sherbrooke Machineries Limited, Sherbrooke, Quebec manufacture similar equipment in Canada

J-80

The Case of the Forgotten Drive
400 HP TANNATE UNI-PULL Drive so trouble-free it has been "forgotten."
J. E. RHOADS & SONS
AMERICAN BOX BOARDS
FILER CITY MILL
Chipper Drive

TANNATE BELT STILL PRACTICALLY MAINTENANCE FREE AFTER SIX YEARS OPERATION

The Chipper drive you see above was installed at the American Box Board Company's Filer City Mill in August, 1950. One year later it was reported that they had practically forgotten about this drive from a maintenance standpoint.

Four years later they again reported that Rhoads Tannate Uni-Pull drive was still practically maintenance free!

Now, again after six years rough, tough operation, they still report that the Tannate Belt is operating very satisfactorily.

That's quite a feat when you consider that this drive transmits power surges of over double the full-load torque.

The 400 HP, 720 RPM wound motor and the driver pulley shaft are flexibly connected, and mounted on a pivoted base. Since there is no motor bearing pressure from belt tension, the use of a standard short shaft is possible. To give an idea of the physical size of the drive, it should be noted that the motor shaft is approximately six feet above the floor line. The base on which the motor is mounted is about ten feet long and weighs approximately three tons complete. This is one of many such installations that demonstrates the superiority of Tannate flat leather belting to deliver a smooth flow of power and maintain constant draws with few adjustments. We'll be glad to give you the complete story on Tannate and its many low cost features.

For the full story on Tannate write J. E. Rhoads and Sons, 2100 West Eleventh Street, Wilmington 99, Delaware.

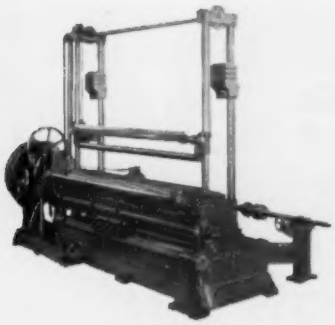
what is Tannate® ?

Tannate is the trade name for the *special tanned leather* developed and produced by J. E. Rhoads and Sons especially for the manufacture of flat leather belting. It combines exceptional grip, pliability, elasticity, strength, and durability. It will resist moisture, mineral oils and the fumes of most acids—will withstand high temperatures (212°F. dry, 170°F. moist).

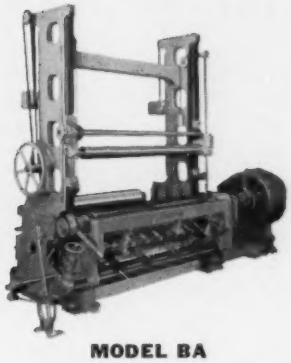
RHOADS
INDUSTRIAL LEATHERS

WILMINGTON • NEW YORK • CHICAGO • ATLANTA

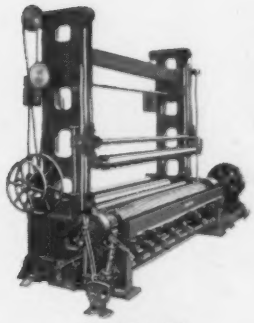
LANGSTON SLITTERS & WINDERS



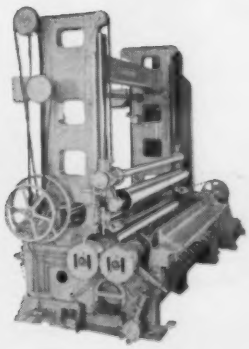
MODEL AA



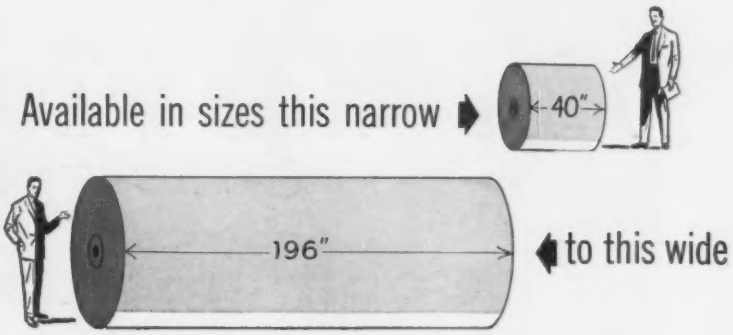
MODEL BA



MODEL CA



MODEL DA



The famous Langston shear-cut slitters cut all weights and grades of paper and paperboard—sharpening themselves as they run. They cut like scissors instead of a knife. Clean-cutting, they keep dust to a minimum. Assure square edges on sheet, clean rolls, and a clean plant. Shear-cut slitters are standard equipment on Langston Slitters & Winders without special order or extra charge. Various types of drive are available, depending upon the desired operating speed and the materials to be handled. Write for specific information on the size machine you need. SAMUEL M. LANGSTON CO., CAMDEN 4, N.J.

SPECIFICATIONS	MODEL AA	MODEL BA	MODEL CA	MODEL DA
Widths	40, 50, 60 and 72"	62, 72, 82 and 92"	82, 92, 102, 112 and 122"	82 to 196"
Speeds to	1500 fpm	1750 fpm	3000 fpm	4000 fpm
Max roll dia	28, 36 or 42"	40, 50 or 60"	40, 50, 60 or 72"	40, 50, 60 or 72"
Min cut	¾"	1 9/16" stand 1⅜" spec	2⅛" stand 1½" spec	3" stand 1½" spec
Winding drums dia	8 7/16"	9½"	11"	14 and 18"
Idlers dia	3⅞ or 6¼"	6⅜ or 9 7/16"	8½ or 10¼"	8½, 10¼ or 12½"
Cutter shaft dia	3"	4⅝"	5½"	7¼ and 8¼"
Pressure roll dia	3 or 4½"	5⅜ or 6⅞"	7½ or 9⅜"	8⅜ or 10⅜"
Weight	9000 lb (50" mach)	17,000 lb (72" mach)	23,000 lb (102" mach)	36,000 lb (122" st)

LANGSTON *Leadership...by design*

American
(DISC TYPE)

Combines Large Filter Area and High Capacity with Floor Space Saving

For certain types of slow stock such as: book papers, highly refined pulps for specialties, carbon papers, glassine, and light **kraft,** large saveall areas may be required.

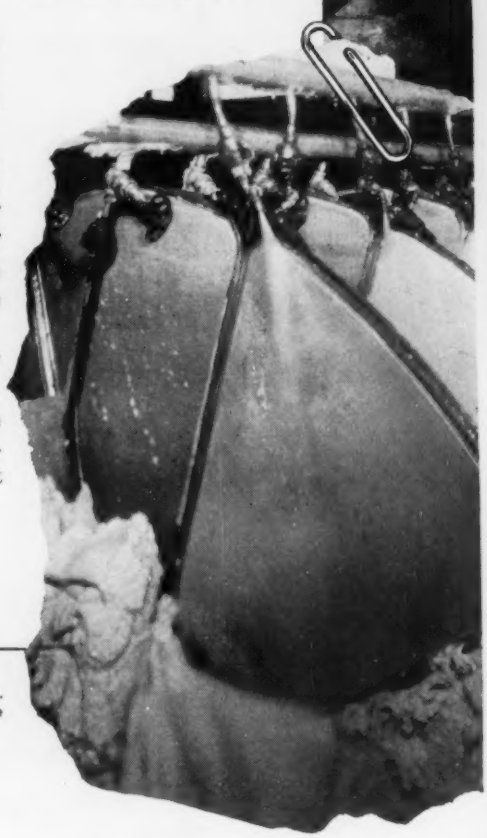
The American Disc Type Saveall Manufactured by Dorr-Oliver provides the large filtering area required while requiring *much less* floor space than comparable drum type units.

Two sizes are available — 9 ft. diameter with maximum of 12 discs having 1200 sq. ft. area requires only 23 ft. x 12 ft. floor space. 7 ft. diameter with maximum of 8 discs and 560 sq. ft. of area requires only 8½ ft. x 15½ ft.

Important operating advantages include — easy, quick replacement of disc sectors. Thus, by keeping a few extra sectors as spares, down-time for periodic replacement of facing wire can be eliminated. By avoiding interruption of operation, problems of change over from white water to fresh water of different temperatures on the paper machine showers is prevented.

Hundreds of American Savealls are operating dependably in leading paper mills.

If you'd like more information on American Disc Type Savealls write for Bulletin 701-R — Dorr-Oliver Incorporated, Stamford, Conn. In Canada, 26 St. Clair Ave., East Toronto 5.



Sluicing jets cut under the sheets and peel or slice them off. The fine fibers and costly fillers are then returned to the stock chest with the sheet.

Illustrated is an American Disc Type Saveall installation at Scott Paper Company Mill in Chester, Pa. The 9 ft., 12 disc machine handles white water from their "Flying Scott", No. 7 machine. It is handling white water and sweetner as feed to the American Saveall, and the effluent filtrate contains only ½ pounds of fiber per 1000 gallons which is of a quality sufficiently high to permit it to be used as shower water.

Thirsty Fibre ®

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

West End . . . new producer of salt cake from natural source

The excellent acceptance by large sections of the pulp industry of this white, free-flowing material, guaranteed 99.5% Na_2SO_4, suggests your consideration of West End as a new source of supply. We will be pleased to submit samples, prices and freight schedules on request.

WEST END

West End Chemical Company

SODA ASH • BORAX • SODIUM SULFATE • SALT CAKE • HYDRATED LIME

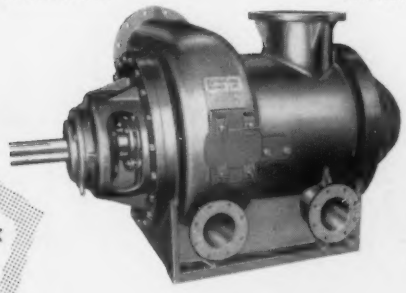
EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIFORNIA • PLANT, WESTEND, CALIFORNIA

The SUTHERLAND BREAKER TRAP
DEFIBERING STAR PERFORMER

THAT GIVES AN INCREASED YIELD OF USABLE FIBERS...

A CLEANER SHEET

WASTE PAPER



PAPER MACHINE BROKE

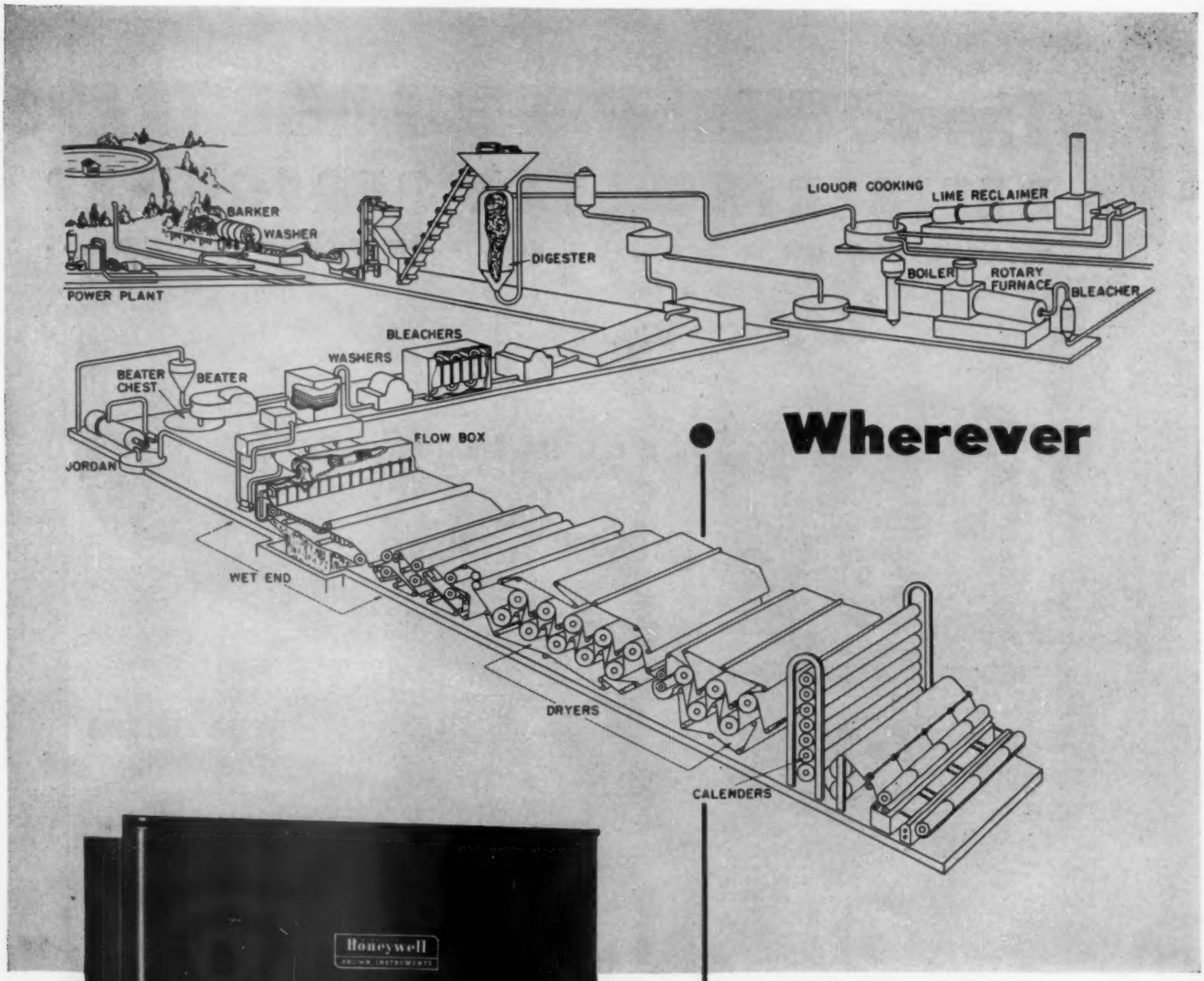
BROWN STOCK DEFIBERING

WET STRENGTH PAPERS

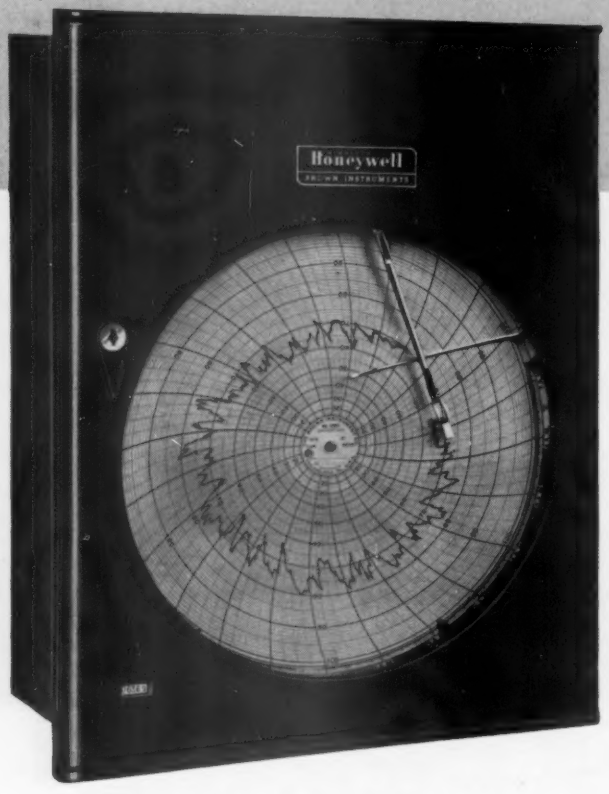
The Sutherland Breaker Trap is the **only** machine specifically designed for **selective** defibering of paper pulp. This versatile machine is unique in principle, simple in operation, low in cost. It may well prove to be the answer to your defibering problem. Write today for full details.

SUTHERLAND

REFINER CORPORATION
TRENTON 2, NEW JERSEY



Wherever



Brown Recording-Integrating Flow Receiver

Brown Flow Meters

are handling fluids such as these:

white water	white liquor
raw water	green liquor
boiler water	black liquor
stock	chlorine
steam	chlorine dioxide
fuel oil	bleach
air	caustic
size	acid
alum	hypo

there's fluid in a paper mill—

there's a Brown Flow Meter

for measurement or control

JUST pick any fluid found in a paper mill. There's a Brown flow meter to measure its flow. Indicating, recording, integrating models. Electric and mechanical types. Evenly graduated and square root scales. Electric and pneumatic transmission. Electric and pneumatic control . . . including ratio, cascade and program systems. Any kind of metering, in fact, for any kind of fluid . . . for process control or for accounting purposes.

Brown flow meters have many time and cost saving features. Interchangeable range tubes, for instance. To switch metering range, you just substitute a new range tube at the meter body and put a new chart on the instrument. There's no need for costly change of orifice plates . . . no process interruption.

You'll save time and money through Honeywell's on-the-spot field service, too. A call to any of the more than 100 branch offices will bring you prompt help by a factory-trained specialist, for installation, start-up or emergency service.

Over 28 years of Honeywell experience in paper mill flow instrumentation is ready to work on your requirements. For a discussion, call your local Honeywell sales engineer . . . he's as near as your phone.

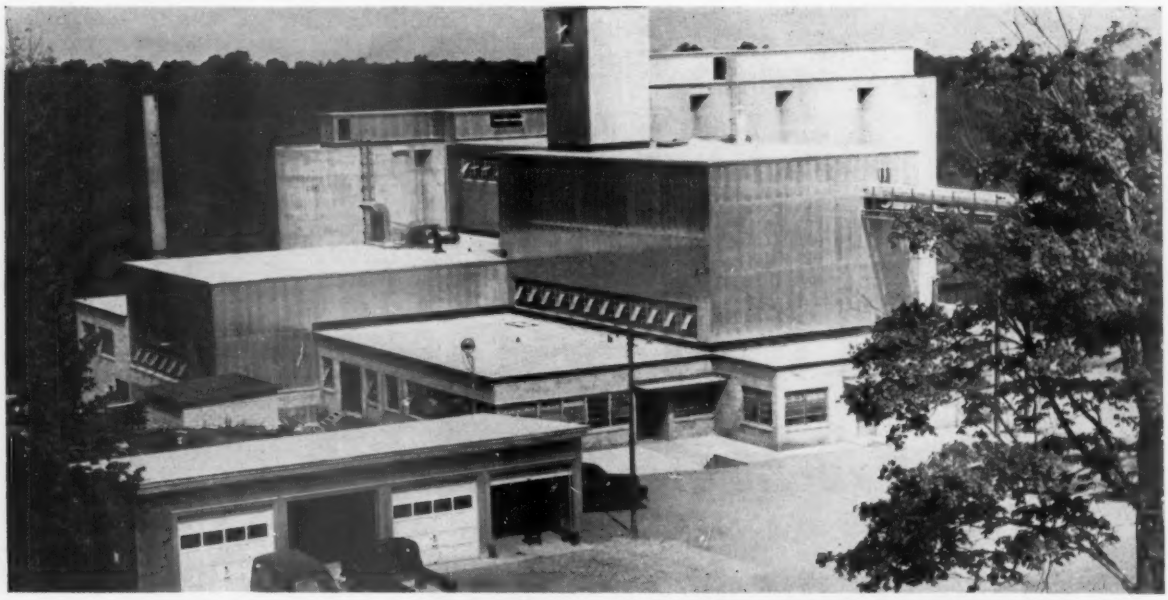
MINNEAPOLIS-HONEYWELL REGULATOR Co., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

● **REFERENCE DATA:** Write for Catalog 2321, "Brown Flow Meters."

MINNEAPOLIS **Honeywell**

BROWN INSTRUMENTS

First in Controls



Gouverneur Talc Co., Gouverneur, N. Y.

NYTAL

New York State Talc for the Paper Industry —Uniform Quality—

R. T. VANDERBILT CO. INC.

230 Park Avenue, New York 17, N. Y.

More Expansion News—
Here, There, Everywhere!

• Expansion news continues to roll in on the crest of a tidal wave of $2⅓ billion dollars (about $1⅓ billion for paper alone, the rest for additional pulp) budgeted by the U.S. industry for expansion and additional facilities in 1956-57 alone:

PUGET PULP INCREASES OUTPUT 25%—Without any major new additions, but by steady improvements and addition of new automatic processes, Puget Sound Pulp & Timber Co. increased its actual daily average pulp production from 371 tons in 1950 to 499 tons in 1955.

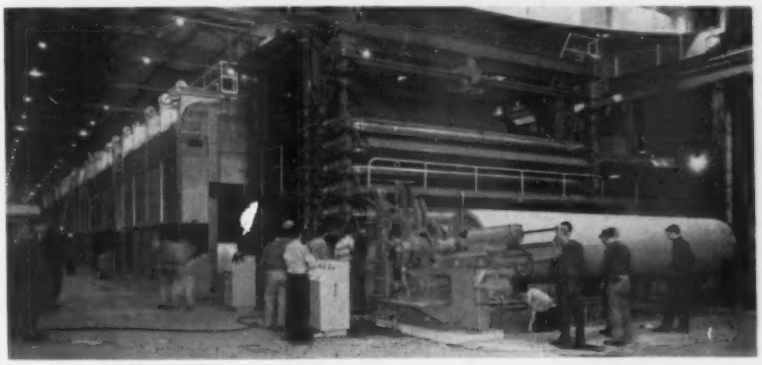
PROGRESS ON ALBERTA MILL—Many walls of structures and structural steel work on the various buildings are already up for new Hinton, Alberta, 430 tons per day bleached kraft pulp mill being built by St. Regis-North Western Pulp & Power Ltd. The bare dusty plain 50 miles east of Jasper Park, where work began only last fall, is fast shaping up as a great industry. Target for completion —next April.

WEYERHAEUSER HAS GROWN—Weyerhaeuser Timber Co. is making 4 tons of pulp for each ton produced 10 years ago, without any significant drain on forest resources. Wood supply is mostly logging and sawmill leftovers or forest thinnings. Pulp and board sales in 1955 reached $96,891,725, slightly more than half as much as lumber sales. Pulp and board volume was up 15% from 1954, and more additions are planned at Cosmopolis, Wash., and Longview, Wash. Weyerhaeuser has invested $241,500,000 in new facilities in the past 10 years, 3½ times what all its facilities cost in 1945.

ANOTHER NORTHERN CALIFORNIA MILL—Diamond Match will spend $15,000,000 on a varied establishment of forest products plants at Red Bluff, Calif., and one will be a molded woodpulp products plant. Another company continues to consider a woodpulp mill in that area, too. There are vast amounts of sawmill leftovers in Northern California now being burned.

The 400-acre plant site now being

SCENE OF $20,000,000 EXPANSION is La Tuque, Que., mill of Canadian International Paper Co. This recent air view shows, among other things, 250-ft. smokestack recently installed, and, at right, the long building which houses new paper and board machine.



BIGGEST MACHINE OF ITS KIND is this 276-in. Beloit, capable of producing 1000 tons of kraft board and paper daily when in full operation, at CIP's recently acquired La Tuque mill.

World's Biggest Linerboard-Paper Machine

Start-up of what has been described as the world's largest kraft linerboard and paper machine (a Beloit) at Canadian International's LaTuque, Que., mill is a significant step in the company's $20,000,000 expansion in the St. Maurice River valley.

The 276-in. machine, along with complementary new equipment, represents an investment of $7,500,000. It is housed in a new building 900 ft. long and 4 stories high. The machine weighs more than 3,000 tons; ultimate capacity is expected to be 1,000 tons per day.

In the 15 months since CIP acquired the LaTuque mill from the Brown Corp. in a $40,000,000 transaction, some 88,000 tons of annual output have been added, boosting yearly production to 263,000 tons. In addition to bleached sulfate pulp, the mill will now produce 115,000 tons of kraft board and kraft paper annually.

OTHER ADDITIONS—Other major additions to the mill include a new Combustion Engineering high pressure boiler, rated at 250,000 pph, in the steam plant; a 300 ton Combustion Engineering recovery boiler, 6 Dominion Bridge digesters, each with a capacity of 3,400 cu. ft., and a new lime kiln. A second recovery smokestack stands 250 ft. tall, is 16 ft. in diameter at the top. Three additional barking drums, a new conveyer system and a new wood stacker have been installed. The new machine will consume 200,000 cords of pulpwood annually.

prepared for construction start is the tract on which Olin Mathieson Chemical's Ecusta Paper Corp. took an option for a plant and subsequently dropped it a year or two ago.

Locally in charge of planning and directing the Diamond Match project is Earl J. Bechard, manager of California Lumber Mfg. Div. of Diamond Match at Chico, Calif. Mr. Bechard says that methods developed by the company to achieve full log utilization include use of an effluent treatment plant which "will insure the return of water to the Sacramento River as clear and pure as that obtained by any municipality on the river."

IP TO BUILD IN SOUTH—While all eyes were on International Paper Co's. West Coast expansion plans, IP pulled a switch and announced a whopping big 300,000 ton-a-year mill near Pine Bluff, Arkansas.

The new $57,000,000 mill is scheduled to start operations in late 1957 to produce 130,000 ton of newsprint and 165,000 tons of bleached kraft board annually.

"The rapid industrial and agricultural expansion in the South recently has made it one of the fastest-growing markets in the world for newsprint," commented John H. Hinman, chairman, adding that "completion of the Arkansas mill will help us meet expanding demand in the Southern States from locally produced newsprint."

This will be IP's second newsprint mill in the South and follows by a year its announced plans for a 115,000 ton newsprint mill at Mobile, Ala., expected to start up this September.

DOUBLE CAPACITY—Brown Paper Mills, Inc., West Monroe, La., now a unit of the Forest Products Div., Olin Mathieson Chemical Corp., will be doubled in capacity up to 1300 tons a day, part of which will be shipping containers and multiwall sacks, and the other part "in a new product field," Robert H. Evans, vice president and general manager of the division, told PULP & PAPER. Cost of expansion—$40 million. The Vancouver, B.C., consulting firm of H. A. Simons Ltd. has been engaged.

MORE FOR MARATHON—Marathon Corp. has announced that it is moving ahead with plans for construction of its new pulp and paper mill at Naheola, Ala. First machine is expected to be operating by Feb. 1958 with entire installation completed by fall of 1959.

Initially, a bleached kraft pulp mill and dryer, to produce upwards of 300,000 tons will be installed. Three 186-in. paper machines will also be included in the equipment.

IP BIDS FOR LAND—At Raleigh, N. C., International Paper has put in a bid for some 11 acres of land on which to locate a milk carton plant. The property is now owned by the city. IP's bid was $3,000 an acre. If

Representative Pulp and Paper Companies, Sales and Earnings—1955

Year ended December 31, 1955, except where another year-end date is shown after the name of the company in left column. Sales and income figures are in thousands of dollars. (Prepared for PULP & PAPER by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct, no guarantee is given as to their accuracy.)

1955	Net Sales (000)	Income Bef. Taxes (000)	% of Sales	Net Income (000)	Net Per Share
Brown Co. (11/30)	$ 53,821	$ 3,380	6.2	$ 2,030	$0.71
Puget Sound Pulp & Timber	23,719	6,712	28.3	3,362	4.32
Rayonier, Inc.	142,521	30,423	21.3	15,918	2.87
MacMillan & Bloedel Co.(9/30)	175,274	35,779	20.4	18,743	3.57
Abitibi Power & Paper Co.	123,173	28,506	23.1	13,936	3.20
Consol. Water Power & Paper	61,188	12,158	19.9	5,595	2.20
Crown Zellerbach	414,080	77,251	18.6	44,128	3.11
Diamond Match Co.	128,839	17,308	13.4	9,108	3.02
Eastern Corp.	23,594	2,371	10.4	1,251	3.40
Glatfelter (P.H.) Co.	18,220	4,603	25.2	2,118	5.79
Great Northern Paper Co.	55,671	9,565	17.1	4,965	4.46
Hammermill Paper Co.	34,461	5,067	14.7	2,771	3.10
KVP Co. (9/30)	48,700	4,474	9.1	2,314	2.81
Marathon Corp. (10/31)	135,108	20,012	14.8	9,197	2.51
Oxford Paper Co.	56,426	7,644	13.5	3,704	4.20
Warren (S.D.) Co.	55,073	5,966	10.8	2,854	2.85
Champion Paper & Fibre Co. (12 mos. ended 12/31/55)	149,707	25,959	17.3	12,708	5.56
Hudson Pulp & Paper (8/31)	44,372	4,626	10.4	2,286	1.57
Kimberly-Clark Co. (12 mos. ended 1/31/56)	242,076	40,997	16.9	20,949	2.73
Mead Corp.	150,457	22,242	14.8	10,642	6.29
Riegel Paper Co.	50,978	5,170	10.1	2,418	2.46
Scott Paper Co.	246,684	41,866	16.9	21,336	2.65
St. Regis Paper Co.	257,057	38,817	15.1	19,048	2.95
W. Va. Pulp & Paper (10/31)	176,237	30,724	17.4	15,724	3.08
Camp Mfg. Co.	27,675	5,837	21.0	3,059	2.94
Southland Paper Mills, Inc.	20,737	8,583	41.3	4,218	9.39
Union Bag & Paper	123,032	29,858	24.2	14,266	8.05
Container Corp. of America	215,555	32,673	15.1	15,703	6.09
Gair (Robert) Co., Inc.	160,240	21,393	13.3	9,320	2.88
National Container Corp.	95,290	18,146	19.0	8,398	2.25
Sutherland Paper	57,302	7,372	12.8	3,512	3.30
Dennison Mfg. Co.	38,744	5,170	13.3	2,404	3.96
American Writing Paper Co.	14,943	1,573	10.5	698	2.58

"Big Six" Have Sales Over $200,000,000

● The "Big Six" in the pulp and paper industry, now that 1956 sales records are all in:

	1956 Sales
1. International Paper Co.	$796,422,000
2. Crown Zellerbach Corp.	$414,080,000
3. St. Regis Paper Co.	$257,057,000
4. Scott Paper Co.	$246,684,000
5. Kimberly-Clark Corp.	$242,076,000
6. Container Corp. of America	$215,555,000

Next, all with sales in 9 figures, are West Virginia, MacMillan & Bloedel (includes lumber and other wood products), Robert Gair, Mead Corp., Champion, Rayonier (also in lumber), Marathon, Diamond Match (lumber, too), Abitibi (other products) and Union Bag & Paper. Nearly every company's sales are greatly increased as a result of mergers.

PULP & PAPER published International's record breaking records for sales and earnings on page 83, April issue. All others of the 15 leaders are found in this table prepared by Cyrus Lawrence & Sons for this magazine.

It shows companies grouped generally according to products:

1st group—MARKET PULP.

2nd group—NORTHERN PAPER COMPANIES (though CZ now includes Gaylord, a subsidiary in South; Marathon is also moving South).

3rd group—PAPER COS. IN BOTH NORTH AND SOUTH.

4th group—SOUTHERN PAPER AND BOARD COS.

5th group—PAPERBOARD COS.

The last two are Northeast converters and specialty paper mills.

plans progress, IP hopes to be making 35 million cartons a year on the site, starting early in 1957.

PLANT FOR ARKANSAS—A new plant to manufacture corrugated paper shipping boxes will be in operation by the middle of the summer, according to officials of Arkansas Container Corp. at Ft. Smith, Ark. Company now has installations at Memphis and Chattanooga and a food product plant at San Antonio. Officials said they plan to have a $500,000 corrugator in operation by July.

HANKINS EXPANSION—A quarter-million dollar expansion program has been completed by Hankins Container Corp. at its Little Rock, Ark., mill with plans for an additional million dollar in additions scheduled for the next three years.

NEW LAW AIDS W. VA.—A federal bill signed into law by President Eisenhower has cleared the path for a $20 million development project at West Virginia's Charleston mill. The bill will permit the government to relinquish land to North Charleston which it has deeded to the city for several years. This land will be used by West Virginia in part of its expansion. In return, the company has pledged to build a dock adjacent to the Army transportation depot dock at a cost of half a million dollars. The city will lease the land to West Virginia.

LUMBER FOR ST. JOE—St. Joe Paper Co. at Port St. Joe, Fla., has announced that it purchased the entire facilities of Reynolds Brothers Lumber Co. at Albany, Ga. Sale gives St. Joe complete control of the lumber firm as well as some 26,000 acres of timber in southwest Georgia. Reynolds has manufactured pine and hardwood lumber, much of it for export. It was one of Albany's oldest business firms.

BUCKEYE TO DOUBLE PULP CAPACITY—Buckeye Cellulose Corp., wholly-owned subsidiary of Procter & Gamble Co., announces it will double capacity of its cellulose pulp mill at Foley, Fla. by mid-1958.

Walter L. Lingle, Jr., exec. v.p. of Procter & Gamble, said the company has appropriated more than $20,000,000 to add a new cellulose pulp unit. It now has one 180 in. Sandy Hill Fourdrinier and 9 digesters. Production capacity of the mill will be increased from over 100,000 tons to 240,000 tons of pulp per year, and pulpwood usage will increase to 1,700 cords per day.

New facilities can be operated independently of the existing mill and will provide a second source of quality pulp from either pine or hardwoods. It now makes viscose yarn, tire cord, cellophane, acetate and nitration grades.

Engineering design work for the new unit will be by Lummus Co., New York, and Sargent & Lundy Co., Chicago, working closely with the engineering organizations of Buckeye and Procter & Gamble.

Buckeye land holdings in the area now total above 745,000 acres.

GAYLORD EXPANSION MAY BRING NEW MILL—Gaylord Container Corp., now a division of Crown-Zellerbach, is conducting an engineering survey to determine the feasibility of building a new paper mill at either DeRidder or Leesville, La. It will require two months or more to complete the work. Announcement was made by Vertrees Young, Gaylord president, in Shreveport, La.

Crown Z has set aside $30,000,000 for expansion of the Gaylord operations.

NCC REPORTS CHANGES—At Valdosta, Ga., production reached a peak of 676 tons in one day—rated capacity is 500. A small second machine commenced operation in Feb., manufacturing multiwall bag paper. The Jacksonville mill, built to produce 200 tons of kraft liner per day, attained production of over 500 tons. A third small machine has been installed in the Tomahawk, Wis., mill, bringing output 75 to 100 tons per day. Big Island, Va., mill increased production of semi-chemical corrugating to 165 tons per day by improvements and new equipment.

CONTAINER CORP. EXPANSION—Container Corp. of America's expansion program now includes a new mill at Brewton, Ala., to produce 300 tons a day of bleached sulfate pulp and board; a 150-ton $6,000,000 boxboard mill at Santa Clara, Calif.; a new corrugated container factory in Chicago area; and an additional folding carton factory in the Seattle area.

During 1955, capital expenditures amounted to $7,819,168, largely for fabricating and converting machinery and equipment.

During the year Container Corp. joined Canadian interests to form Europa Carton A.G., with a folding carton plant at Hamburg, Germany, a corrugated container factory at Dusseldorf, and the Alkor 3-machine paper mill in Alling, Bavaria. Plans in Germany also include the building of a new 110 ton paperboard mill within two years.

NEW SITE FOR UNION BAG?—A Tucker, Anthony & Co. report says Union Bag & Paper Corp. expansion

Perkins-Goodwin Joins Singer in New Market Pulp Mill

A new supply of market pulp, bleached hardwood kraft, of a quality hitherto not produced on this continent, will soon be made by newly formed Thurso Pulp & Paper Co., at Thurso, Que., Canada.

In this joint venture, 110-year-old Perkins-Goodwin Co. will share its pulp and paper industry know-how with 105-year-old Singer Mfg. Co. in a 30% (P-G)—70% (Singer) partnership.

Construction has already started on the new $16 million plant which will produce 200-tons/day of high brightness (88-90GE) pulp by continuous pulping and two-stage chlorine dioxide bleaching. Approximately 60% of output will be bleached hardwood kraft (mostly birch) and 40% softwood.

The low ($16 million) cost evolves from the fact that the new plant will be only one-third of a mile from the Singer sawmill and will utilize many existing facilities. For instance, its pulpwood needs will be provided by a 65-mile long privately owned railroad stretching into the forests. Good roads and already existing railroad facilities are also at the plant site.

"The plant site is a natural," President Paul Bourget told PULP & PAPER. He has been works manager at Singer Mfg. at Thurso for some 27 years. "We have good hardtop roads and a well developed community. Usual headaches attendant to setting up a new mill in underdeveloped areas will not be a problem to us."

Some 1250 people are expected to be added to the present 2,500 population of Thurso. "The town is well prepared for this influx and can handle it," Mr. Bourget remarked.

Officers of the new company in addition to Mr. Bourget are Stanford G. Blankinship, vice president, Lawrence E. Hird, vice president and treasurer, and Hazen Hansard, secretary. In addition to these, the board of directors will also comprise Louis Calder, Jr. of P-G, and Donald P. Kircher, who is also a director and vice president of Singer.

Consulting engineer is E. H. Charlton and Associates of Montreal. Engineering the construction will be Foundation Co. of Canada. Negotiations are now underway for equipment and information as to further equipment and technical details will be featured soon in PULP & PAPER.

Perkins-Goodwin will be exclusive sales agent.

to another site (other than Savannah) appears to be the next move and preliminary surveys are being made to determine the best way to accomplish this. Among projects being considered is one for construction of a bleached kraft pulp mill, coupled with a paper mill, to produce about 500 tons per day of newsprint, made of 20% chemical fiber and 80% groundwood. Bleached kraft pulp would be available from this operation for sales in the open market or made into paper, if another paper machine were installed.

MARKET PULP MILL FOR GREAT LAKES—A new market woodpulp mill costing about $40,000,000 will be built adjacent to its Fort William, Ont., pulp and newsprint mill by Great Lakes Paper Co.

It is likely that the mill will make bleached kraft pulp, utilizing hardwoods as well as softwoods, and probably will be for around 300 tons a day capacity. Announcement was made by Ontario Lands and Forests Minister Clare Mapledoram.

The recently organized Canadian Wood Pulp Co. is the marketing agent for Great Lakes, and the new mill will substantially add to its pulp for sale. E. E. (Eddie) Barrett is president of Canadian Wood Pulp Co., at 444 Madison Ave., New York, and Ken Fosse is Midwest representative, at 919 N. Michigan, Chicago.

This expansion is in addition to the $20,000,000 Great Lakes project for a third newsprint machine by July 1957. Bagley & Sewall division of Black Clawson is building the 272 in. machine.

FOR CHILLICOTHE PAPER CO.—A new Rice Barton 188 in. Fourdrinier machine (174 in. trim) will increase production of offset and high grade book papers at Chillicothe Paper Co., subsidiary of The Mead Corp., by mid-1957. The company also plans to put up a new 200 x 290 ft. 2-story finishing building this year, to permit enlargement and better arrangement of finishing operations.

The two projects will cost about $7 million, according to A. P. Story, president. Chas. T. Main, Inc., Boston, are consulting engineers handling engineering for the machine, which will be Chillicothe's No. 4.

CHARMIN MILLS INCREASE—A new hot felt, new wire vacuum system, new second suction press roll, Vickery felt conditioner, and more felt rolls have substantially increased production of No. 1 Beloit post-war Yankee machine at Charmin Paper Mills, Green Bay, Wis.

Growing Paper Center

This map shows Natchez, a pulp and paper center since 1948, and three overland routes flatboatmen used to get back home—in early 1800's. Thousands of new settlers used Natchez Trace, a wagon train route in 1801.

The pulp and paper industry began in 1948 with the start of the Johns-Manville plant. Now it is the largest industrial employer in the Natchez area. In 1950, International Paper Co. began operating its rayon pulp mill, providing new market for large bottomland and upland hardwoods found in the Natchez area. Pulpwood production in the 4-county Natchez area has increased 186% since 1947, and now totals 200,000 cords annually. Hardwood woodpulp production, of minor importance in 1947, is now 50% larger than pine woodpulp production, and the 4 counties in the Natchez area rank in the first 10 counties in the South in production of hardwood pulp.

STATUS OF HAMMERMILL—Accurate and up-to-date information on expansion plans of Hammermill Paper Co. has been secured by PULP & PAPER from R. P. "Tom" Price, vice president.

"Hammermill is actively considering supplementing its present pulp output by construction of additional productive facilities," Mr. Price disclosed. He added, "Recently Hammermill completed a modern pulp mill at Erie now producing 100 tons/day of Neutracel pulp. (This plant is sized for quick expansion to 200 tons—Eds. Note.)

"Location of additional new facilities has not been determined but consideration is being given to all possible sites in the region of the hardwood forests of Northern Pennsylvania and Southern New York. One site of 77 acres near Franklin, Pa., has been purchased and detailed studies of the practicability of this location are in progress.

"No decision concerning construction of a new mill, its type or location has been made. For several years Hammermill has pursued a policy of acquisition of hardwood lands in Northern Pennsylvania and Southern New York. This policy is being continued," concluded Mr. Price.

ANOTHER BAG PLANT—St. Regis will commence multiwall bag operations at a new plant at Kansas City, Mo., this summer in a modern 100,000 sq. ft. plant. Kraft paper will be supplied by St. Regis mills in Florida.

EXPANSION AT SUTHERLAND—Capital additions for Sutherland Paper Co., Kalamazoo, Mich., during 1955 amounted to $2,855,000 as compared with $4,129,000 in 1954. Included in the 1955 figure are additional paper mill equipment, printing equipment, machinery for the manufacture of cold drink cups and about $100,000 for a Research and Engineering building. It will have approximately 30,000 sq. ft. of space on three floors and is being built across the street from the Administration building at the North Side Plant and was to be ready for use during May.

KRAFT MILL FOR EASTERN—President Harold Holden has announced plans for a new $10 million 175-tons-a-day kraft mill at Lincoln, Me., for Eastern Corp. Bleached and unbleached kraft will be made both from soft and hardwoods and some will be for market pulp.

Mr. Holden told P & P that Rust Engineering Co. would handle construction and that Kamyr continuous pulping process would be used.

GOULD TO CHEMIGROUNDWOOD—President Ralph Leuthi is directing steps toward chemigroundwood operations at Gould Paper Co., Lyons Falls, N.Y. Some 6 years ago Gould estimated that they had only a 10-year supply of spruce which they had been using for the past 60 years. Further depletion was wrought by the hurricanes of 1950 and 1952 which reduced supply by 50%. Since 1954 Gould discontinued its sulfite making operations, switching over to groundwood to conserve this supply.

It is now reported that Bauer Bros. is installing a 40-ton a day experimen-

tal chemigroundwood plant to be in operation in early June. It will be located in the old sulfite mill using some of the digester, blow tank and stone tower equipment idle for 2 years.

MORE FOR GREAT NORTHERN—Having just completed Step II in a $45 million expansion program, Great Northern Paper Co. is embarking on another $21 million program at its Millinocket mill. Part will be for a new steam plant, a duplicate of that at East Millinocket and for speeding up the 10 paper machines.

Phase III at East Millinocket is already in progress to increase the speed of the two new Beloit newsprint machines toward their maximum designed capacities of 250 tons each per day, which will require additional power, grinders and chemigroundwood digesters.

M. C. McDonald, president, reports that addition of the fourth chemigroundwood digester in the Fall of 1955, helped in combatting low water problems because of the reduced power requirements of chemigroundwood pulp.

GLATFELTER MACHINE—P. H. Glatfelter's $12.5 million expansion program is expected to culminate this summer with a new Rice Barton paper machine 188-in. wide with variable speeds from 333 fpm to 2,000 fpm.

DOWNINGTOWN MODERNIZES—Downingtown Paper Co. is rolling ahead full speed with modernization of its No. 2 mill. Features will be a new 8-cylinder wet end, with four main presses, two new 7-roll calender stacks plus a new cutter, reel and rewinder. Black-Clawson will supply calenders and cutters; Manchester Machine Co., the wet end, drives, reel and rewinder.

The new beater room will have three hydropulpers by Black-Clawson.

MORE COATING FOR C-I—Champion-International Co. has an ambitious program to improve plant facilities, according to Kurtz M. Hanson, president. One coating machine will be rebuilt; a new calender to take full trim of No. 8 coater is expected to be delivered by Fall and installation of a modern recovery furnace is hoped to be in operation in 1957.

MORE JOHNS-MANVILLE MILLS—The Johns-Manville Corp., which already has 6 board mills in the U.S. and one in Canada, is planning 2 more—a hardboard plant adjacent to its insulating softboard mill at Natchez, Miss., and another insulating softboard mill 20 miles north of Klamath Falls, Ore. Cost of plant and timber already purchased for the latter plant totals $12,000,000. Ground fiber of lodgepole and jackpine will be used. At Natchez, the addition will use 15,000 cords per year of hardwoods, in addition to wood for the existing mill there. J-M Corp. is spending $26,000,000 on expansion this year.

New Exec. V.P. of Pulp Sales

DAVID BRITTAIN, who is now Executive Vice President of Mead Pulp Sales, Inc., heading all sales of Mead, Abitibi, MacMillan & Bloedel unbleached grades and other pulps marketed by that company. He will remain at his Midwest offices, 20 Wacker Drive, Chicago, until summer, when he moves to 230 Park Ave., New York. Born in Pittsburgh, a graduate of Amherst, he worked in pulp mills in Longview and Everett, Wash. before joining Mead pulp sales 17 years ago. His wife, Norma, and daughter, in high school, live on Chicago's Lake Shore. Appointment was announced by Sydney Ferguson, President of Mead Pulp Sales.

READY IN '57 AT KENORA—By the first of 1957, Ontario & Minnesota Pulp & Paper hopes to have its new 276-in. Beloit newsprint machine in operation at Kenora, Ont. The machine has been balanced for speeds up to 2500 fpm, almost doubling output of the mill, with new power, sulfite and groundwood pulp facilities. At Fort Frances, Ont., a new vacuum pickup is being installed on No. 7 newsprint machine.

ADDITIONS BY FRASER—A new steam plant at Atholville, N.B., mill of Fraser Companies is completed. A new turbine generator is to commence operating by summer. A new pulpwood haul-up was constructed there as well as at Edmundston, N.B. Bauer cleaners were installed at Madawaska, Maine.

Two new digesters, additional evaporators and causticizing equipment will soon start up at Newcastle, N.B. Additional sulfite bleaching capacity and a power plant are being installed at Edmundston.

SPEEDUP AT POWELL—A speedup program for No. 7 newsprint machine at Powell River Co. has been completed and its new No. 9 machine will be increasing capacity another 25% by December. A new office building is being readied by September at the British Columbia town. All newsprint is already sold for 1956, and all its market unbleached sulfite pulp will be sold.

HAWAIIAN RUMORS PREMATURE—Rumors that the Hawaiian Sugar Planters' Association had decided to build a bagasse board mill or market pulp mill in Hawaii were denied by a spokesman for the group.

G. W. Aljian, coordinator of the HSPA's by-products project, told PULP & PAPER that as yet no decision has been reached on the construction of any bagasse pulp or paper mill in Hawaii.

PULP & PAPER Article Picked as Contest Winner

PULP & PAPER's article: "Will Most Future Paper Be Coated?" (Aug. 1955 issue) was selected by a panel of judges to be republished in a new publication, "Graphic Arts Progress 1956."

The new publication was introduced during the National Paper Trade Association convention in New York, Apr. 9 to 11. The contest was sponsored by Fraser Paper Ltd., which published the new book. It is planned as an annual event.

PULP & PAPER's article was based on a survey and keynote address made by Albert W. Wilson, editor, at the 1955 National TAPPI Coating Conference.

It was selected as a winner for the graphic arts publication by this panel of judges, each outstanding in his field:

F. J. Amery, Faculty of Printing Management, Carnegie Institute of Technology; Max B. Carlson, Clarkson Press, Buffalo, N. Y., and president of Rotary Section, Printing Industry of America; Warren L. Rhodes, head of Graphic Arts Research, Rochester Institute of Technology, and William Walling, Rogers Kellog Stillson, New York, and immediate past president of Printing Institute of America.

"Canada has already lost a 1,500,000-ton market in the Southern U. S. We face the prospect of losing our market in the Northeast U. S. as well. In the South they have learned to generate steam for electric power at ratios comparable to Canadian rates for hydro-electric energy. Cheap waterpower is one of the natural resources which Canadians have depended on to put them into the lead in the pulp and paper industry. Another factor working against Canada is the lower mill-to-market cost in the Southern states. The fact is that technological advances are simply overtaking the head-start Canadians were given by a lavish nature."—**VERNON E. JOHNSON,** president Canadian International Paper Co., before Canada's Gordon Economic Commission.

"Paper is still making inroads in markets formerly held by wood, glass, metals and textiles. But to preserve our competitive position and to extend our gains, we must increase our outlays for research," **DAVID L. LUKE, JR.,** president, West Virginia Pulp & Paper Co., and president, American Paper & Pulp Assn.

"This past year has proven that when our national income rises the value and the volume of our imports tend to rise. When we buy more from foreign countries their dollar resources increase and they in turn can buy more from us . . . A dollar sent abroad has no place to go—but home."—**J. D. ZELLERBACH,** president of Crown Zellerbach.

"Automation—it's an ogre to labor unions; a choice morsel to politicians. But you will never automate merchandizing."—**JUDSON S. SAYRE,** President, Norge Division, Borg-Warner Corp.

"Nearly 50% of the nation's beverage milk is now packed in paper. The paper milk container is one of the most spectacular packaging achievements of the century, for it has virtually changed the entire milk marketing industry in America. This year's production of the disposable milk cartons will require over 340,000 tons of paper and 130,000 tons of paraffin."—**EZRA BENSON,** U. S. Secretary of Agriculture.

Canadians Debate Fowler's Stand

• The contention of R. M. Fowler, president of Canadian Pulp and Paper Association, that Canada should accept the role of primary producer of raw materials and basic manufactured commodities rather than go all out for protection of secondary industries has drawn protests from groups outside the pulp and paper field in Canada.

In spite of disagreement, Mr. Fowler has had support from influential leaders in the industry, such as H. R. MacMillan, who recently stepped down as chairman of the board, MacMillan & Bloedel.

Mr. MacMillan, who still holds a dominant place in West Coast industry, points out that higher tariffs for Canadian production is invariably reflected in the cost of building new mills, in the purchase of equipment and materials. The fact that Canada depends so heavily on export trade to sustain her pulp and paper mills makes the country particularly vulnerable if costs of production continue to rise.

Mr. Fowler's somewhat controversial statement of the industry's position was interpreted in some quarters as being at variance with previously expressed opinions respecting the need for protection of Canada's fine paper industry. His comments were contained in a lengthy submission to the Gordon Economic Commission, which is assessing Canada's industrial prospects over the next quarter century.

Another industry spokesman before the Commission was E. Howard Smith, president of Howard Smith Paper Mills, largest producer of fine and specialty papers in Canada. Mr. Smith maintained that "reasonable tariff protection" is essential and that there should be no reduction in present rates of duty, particularly as they refer to imports from the U.S.

CANADIAN COSTS ARE HIGH—Mr. Fowler stressed that if foreign supplies required by Canadian industry must surmount a tariff, or if higher cost domestic supplies are used because of a tariff, then these tariff costs must find their way into the price levels of Canadian exports.

"While our export industries (pulp and paper is the greatest) have had cost advantages in world trade, the margin of advantage is shrinking," warned Mr. Fowler. "Labor costs are now virtually the same as those in the U.S.; power costs are still somewhat lower but new sources of power are being developed. Capital costs of new construction and machinery are generally higher and transportation costs are substantially higher in Canada."

Mr. Fowler argues that if Canada needs to maintain high-cost industries for reasons of national development, Canadians should constantly consider the price of doing so and especially the influence on the costs of Canada's export industries which are the main source of the nation's prosperity.

PRESENT ECONOMY IS SOUND—Mr. Fowler is confident that Canada will continue to enjoy a high living standard "unless we unwisely adopt a national policy that seeks to hoard our natural resources and force the growth of secondary industries by artificial means.

"There may be more value derived from our resources if we exchange them with other countries for commodities that they can produce efficiently rather than to attempt to produce those commodities ourselves—by selling newsprint and pulps, in exchange for American machines, Swiss watches or British textiles."

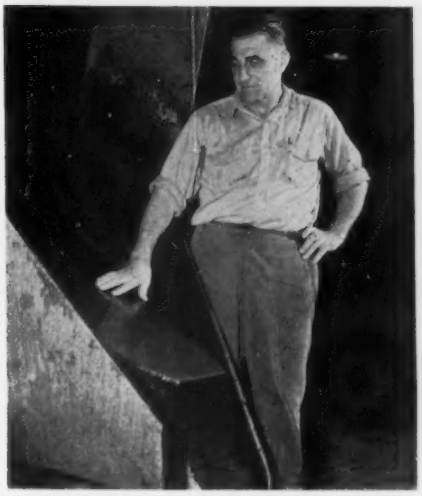
Mr. Fowler is inclined to think that Canada's aversion to being a nation of "hewers of wood and drawers of water" is fallacious in view of the long-range trend towards mounting pressure on the supply of raw materials. The economic advantage, he says, is swinging in favor of the raw material producer and the basic fabricator and their position and rewards seem likely to grow, both absolutely and relatively.

He adds, "The best national economic policy is for Canada to accept the fact that world demands on Canada will be predominantly for raw materials and basic manufactured commodities, and those are the activities in which we can be most profitably engaged."

For British Columbia's Safest Mill

ROY FERGUSON (left), Res. Mgr. of Crown Zellerbach's Ocean Falls mill, receives from CLIFFORD CRISPIN, Vice pres., Pulp, MacMillan & Bloedel, chairman of Western Branch, Canadian Pulp and Paper Assn. the trophy symbolic of safest pulp and paper mill in British Columbia. Ocean Falls maintained a 2.89 frequency for 1955.

How To Do It



GADGET DOES THE TRICK. ART THOMAS, Nekoosa Mill Woodroom Supervisor, inspects device which Mr. Wipfli designed, which ejects oversize logs from conveyor ahead of chipper.

TAKES BULL WORK OUT OF JOB. Chipperman DAVE POPP releases air valve, at left, when he notes a log that is too big for D. J. Murray chipper to handle, and out flies the log. "It's a pretty wonderful thing," Dave said, "It sure takes the bull work out of the chipperman's job."

Ingenuity at Nekoosa Makes Job Easier

• Do you handle your oversize logs ahead of chipper by muscle-power?

At the Nekoosa, Wis., graft pulp and paper mill of Nekoosa-Edwards Paper Co., that's the way they were doing it. But they don't any more.

In the past when oversize logs came over the conveyor headed for the D. J. Murray Mfg. Co. 10-knife, 88-in. Model C chipper, the conveyor had to be stopped and the huge logs lifted out by hand.

Art Thomas, Nekoosa woodroom supervisor, began searching for a better way, to save time and make the job easier for the crew that had to wrestle with big log bolts. He talked it over with Joe Wipfli, maintenance superintendent of the kraft mill. He has had quite a record there for engineering many labor-saving devices.

THEY DEVISE SOLUTION—Eventually they came up with a gimmick—a steel plate actuated by a compressed air cylinder which pops up, ejecting the log out on the floor. All the chipperman has to do is press a button when he spots a log coming down the conveyor that is too big for the chipper spout. Out flies the log, which is later run through the splitter, reducing it to a workable size.

The splitter at Nekoosa is Carthage Machine Co. 30-in. diameter, 5 ft. long hydraulic wood splitter. Another labor-saver is the Yale Load King electric hoist of 1,000 tons capacity, which moves the ejected log bolts to the splitter.

HE FOUND A WAY. JOE WIPFLI, Supt. of Maintenance, Nekoosa Kraft Div., Nekoosa-Edwards Paper Co., has engineered many labor-saving devices.

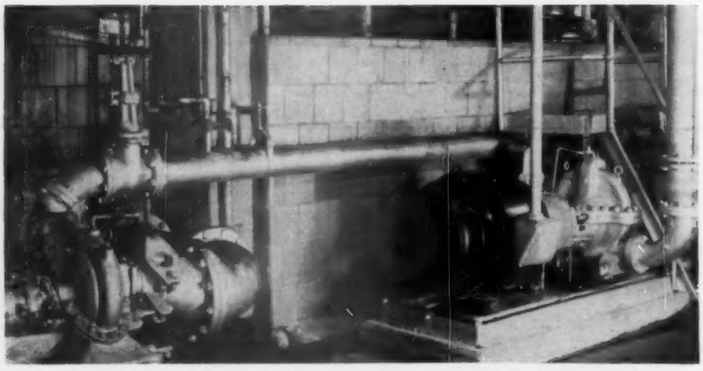
Thinking of better ways to do things is generally recognied as one of the most important attributes of a good supervisor in this industry.

ANOTHER LABOR-SAVER. Giant logs are stacked on floor near chipper until they are moved to Carthage splitter by Yale overhead hoist—another labor-saving device at Nekoosa kraft mill. Logs in this photo are part of a shipment from Tomahawk Timber Co. Operating hoist is GEORGE LOVESEE, Knife-Changer and Splitterman.

A Clay-Saving Idea

By virtue of an idea put into writing as a "suggestion," Roy Rose of Champion Paper's Ohio Div., Chemical Preparation Dept., is $500 richer.

To save clay, he suggested adding water to the centrifuge rejects tank in the Hamilton, O., mill's color room, following initial pump-up of the clay rejects. In turn, residual clay left in the line is flushed up to the slurry storage tank in the chemical building. Heretofore, rejected clay remaining in the line was flushed out of the line into the sewer. This promises to result in a considerable savings in clay.



IF PACKINGS ARE USED RIGHT, service life will increase manyfold. This was the burden of J. W. HEMPHILL's talk in Appleton. This typical installation for stock handling is in a Middle Atlantic mill.

Proper Packings Increase Service Manyfold

Proper packing procedures will reduce maintenance, extend operating cycles without major repairs, and increase production—this was the main theme of a talk in Appleton, Wis., on Mar. 22.

J. W. "Bumps" Hemphill, who is "Mr. Pulp and Paper" for the Johns-Manville Corp., and a founder of TAPPI's Engineering Division, was the speaker and his audience was the Northwestern Division of the Supts. Assn.

The practical applications of mechanical packings as used in mills has been virtually a "crusade" of many years for Mr. Hemphill, and his audience of key supervisory men in the Lake States mills was appreciative of his discussion, based on experience in all kinds of mills from coast to coast.

Howard H. Street, national president of the Supts. and manager of National Vulcanized Fibre Co.s Delaware mills, also spoke. He emphasized the urgent need of developing key personnel to keep up with the fantastic growth of this industry.

A. H. Bunks, asst. mgr. of Consolidated Water Power & Papers Appleton mill, and secretary of the Northwestern group, chairmanned the meeting and invited guests to tour his company's mill. John McPherson, asst. mgr. of Mosinee Paper Mills, and chairman of the division, was a speaker.

J. W. HEMPHILL (left), Mgr., Pulp and Paper Industry, Johns-Manville Corp., told Appleton audience how proper use of packings will increase equipment service manyfold.

A. H. BUNKS (right), Asst. Mgr., Consolidated Water Power & Paper Co., Appleton Mill, chairmanned the meeting attended by about 200.

MR. HEMPHILL'S TALK—"From a standpoint of economics," said Mr. Hemphill, "the packing bill in most process industries is a relatively small item. If the entire packing bill could be saved, it probably would not represent a savings of more than one or two cents per ton of finished products."

But better use of packings will reduce wear and tear on equipment, reduce shutdown time, resulting in more production and less work for maintenance crews.

Packings are made from asbestos, flax, cottons, plastics, rubber, Teflon and various metals incorporated with grafite and lubricants of various kinds to suit specific conditions. Years of experience, he said, have developed the conception that, while selection of a packing is important and may increase service life considerably, the proper handling of packing will increase its life manyfold. Laboratory tests indicate the economic life of a packing is reached when it is consolidated to a point where it can no longer be expanded to form a seal or when it is no longer capable of feeding lubrication to the interface between the packing and shaft or sleeve. The critical point is when the packing has been consolidated to two-thirds of its original volume.

"If the packing has been correctly installed," said Mr. Hemphill, "a pressure seal is established in the bottom of the stuffing box that prevents the fluid and solids being pumped from entering the box. It is recognized that operations may at times suggest different packing arrangements to meet certain specific conditions.

"Under proper conditions of operation, maximum life of packing, minimum waste of power through friction and minimum wear and tear on rotating parts are obtained."

Bamboo Mill in Burma Still "Alive"—in Abeyance

Plans for a 100-ton or 150-ton bamboo-pulp and paper mill near the seaport of Akyab, Burma, are still "alive," though presently in abeyance. The mill capacity would serve only domestic needs, as Burma has no paper mills. Self-sustaining sources of fast-growing bamboo would be the raw material.

Unfavorable trade balances of the past year for Burma and tighter restrictions on sterling have temporarily stalled the project. Burma has a surplus of rice, built up by American aid funds, and this has created an unfavorable background for the undertaking.

American private investment funds are said to be available, but the Burmese government is unable to raise its 50%. The Burmese insist on local control and a half-interest because of strong anti-colonial sentiment.

Roberts Hattis, Engineers, of Chicago, have ready an extensive survey and plans for the entire development.

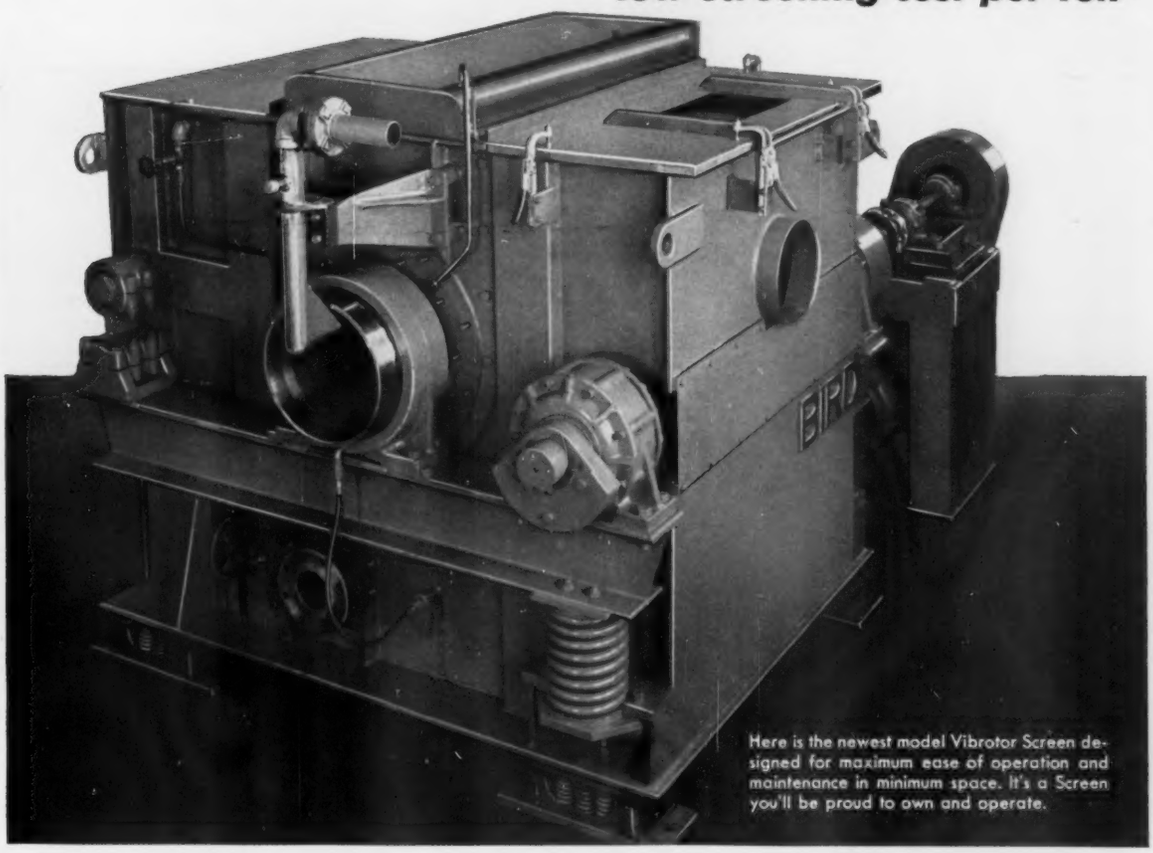
"Tom" Burke Drops 2 Jobs

THOMAS J. BURKE has retired as Secy-Treas. of Sulphite Paper Mfrs. Assn., Inc. and of Glassine & Greaseproof Mfrs. Assn. but will continue as Secy-Treas. of Vegetable Parchment Mfrs. Assn. CHARLES H. LEACH succeeds Mr. Burke in the Sulphite and Glassine groups.

Mr. Burke completed over 35 years as a secy-treas. of associations in this industry. He was appointed Secy-Treas. of the Cost Assn. of the Paper Industry in 1920, later the Cost Dept. of APPA. In 1930 he took over the Glassine Div. post, and in 1932 and 1933 took on his recent posts in 3 associations. He was educated in England, went to Canada in 1910, joined Barrow Wade Guthrie & Co. in Philadelphia in 1919.

THIS IS THE SCREEN

for high capacity, slotted plate screening of high consistency stocks at low screening cost per ton



Here is the newest model Vibrotor Screen designed for maximum ease of operation and maintenance in minimum space. It's a Screen you'll be proud to own and operate.

THE BIRD VIBROTOR SCREEN

On *unbleached sulphite* of 1.5% consistency a Vibrotor Screen with .012″ plates delivers 55 air dry tons per day

On *bleached sulphite* at 1.7% consistency, through .012″ plates — 68 tons

On 1.6% *unbleached kraft* through .012″ plates — 58 tons

On 1.9% *bleached kraft* through .012″ plates — 80 tons

On 1.7% *semi-chemical* through .018″ plates — 86 tons

On 2.0% *board filler* through .020″ plates — 110 tons

On 1.7% *newsprint* through .014″ plates — 83 tons

On 1.9% *deink stock* through .012″ plates — 148 tons

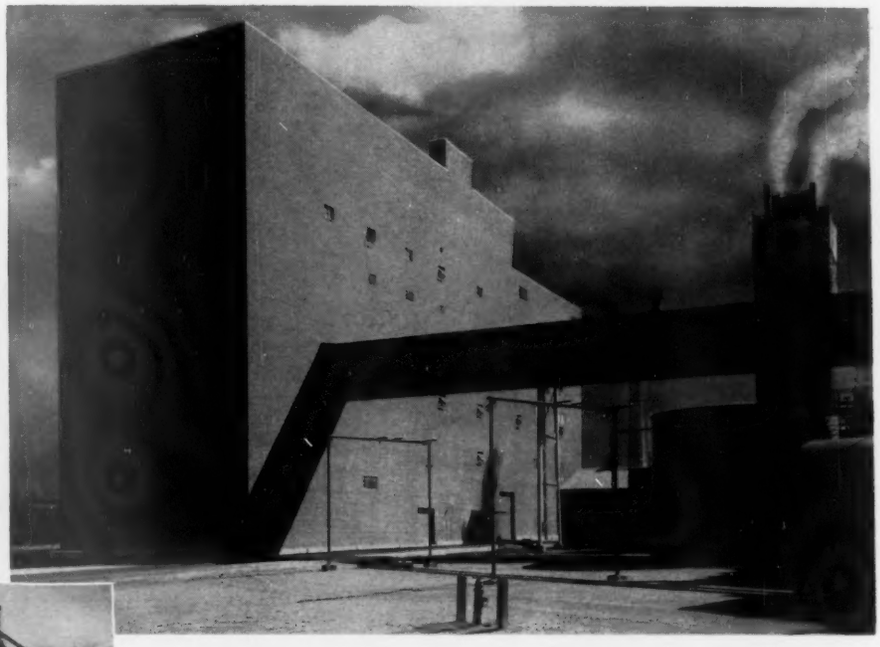
BIRD MACHINE COMPANY

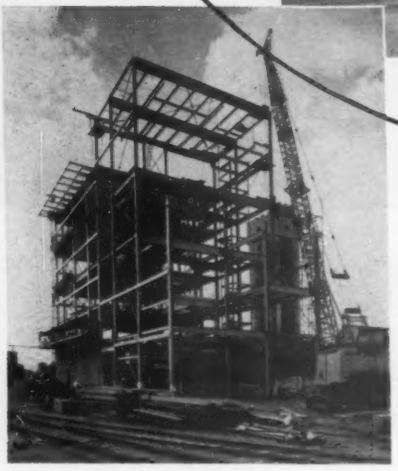
SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

Engineers and Constructors for the PULP and PAPER industry





Hammermill Paper Company's multi-million dollar addition increased its Neutracel manufacturing facilities to approximately 100 tons per day, with provision made for further expansion to 200 tons per day. Photo shows an early stage of construction by The Rust Engineering Company.

Neutracel Bleaching and Pulping Plant Hammermill Paper Company, Erie, Pa.

...an Example of Rust-Client Teamwork — from Start to Finish

Hammermill Paper Company's recently-completed expansion project is an outstanding example of The Rust Engineering Company's policy of working for—and *with*—its clients in meeting their engineering and construction needs.

Supplementing Hammermill's own engineering staff, Rust personnel engineered and constructed the new Neutracel bleaching and pulping plant shown above. In every phase of the work—engineering, construction, purchasing, accounting, equipment erection, and plant start-up—Rust and Hammermill representatives worked closely together in coordinating all operations from start to finish. This fine example of teamwork made it possible to complete the project six months ahead of schedule and with substantial savings in cost.

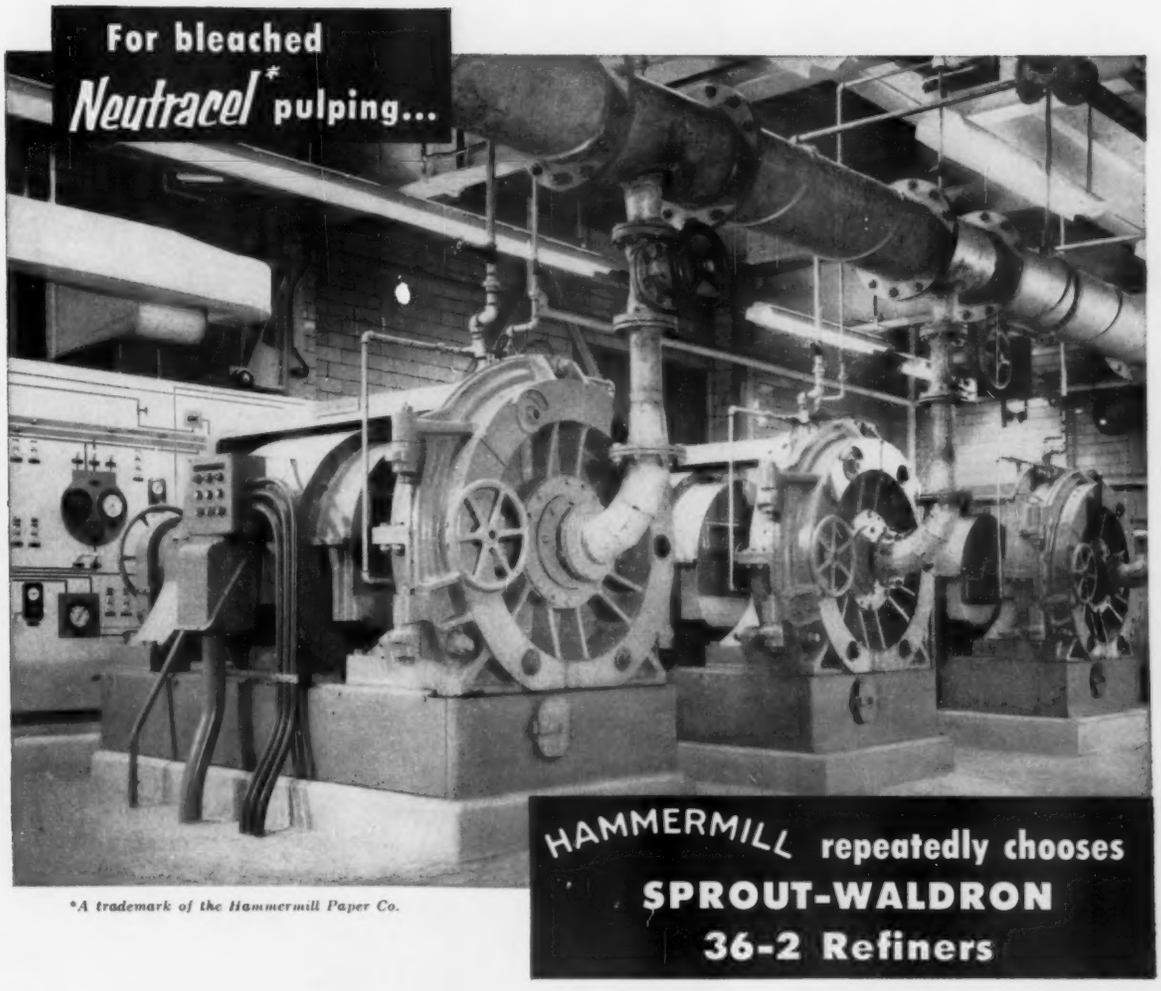
THE RUST ENGINEERING COMPANY

Founded 1905

PITTSBURGH 19, PA. • BIRMINGHAM 3, ALA.

Offices in Other Principal U. S. and Canadian Cities

P-3



*A trademark of the Hammermill Paper Co.

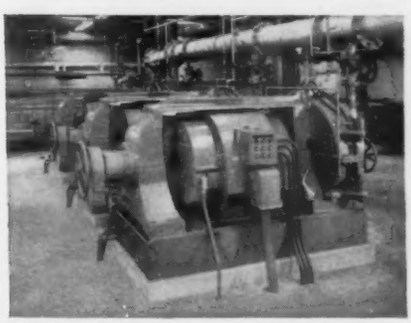
The SPROUT-WALDRON Refiner is the Leading Producer of Semichemical Pulp

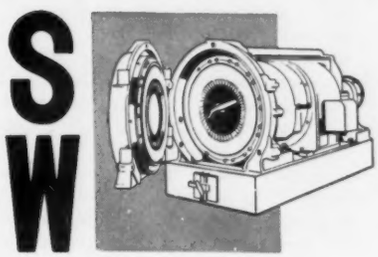
Single rotating disc design with peripheral control ring plus rugged construction provide **HIGH PULP QUALITY, HIGH CAPACITY, FLEXIBLE OPERATION,** and **LOW MAINTENANCE.**

For more information on semichemical pulping or any other pulping application, send for our file of mill technical reports. Write to Sprout, Waldron & Co., Inc., 32 Logan St., Muncy, Pa.

Three Sprout-Waldron Refiners pulping neutral sulphite semichemically cooked chips in one refining stage.

Two other Sprout-Waldron Refiners are used in their sulphite rejects reclaiming system.





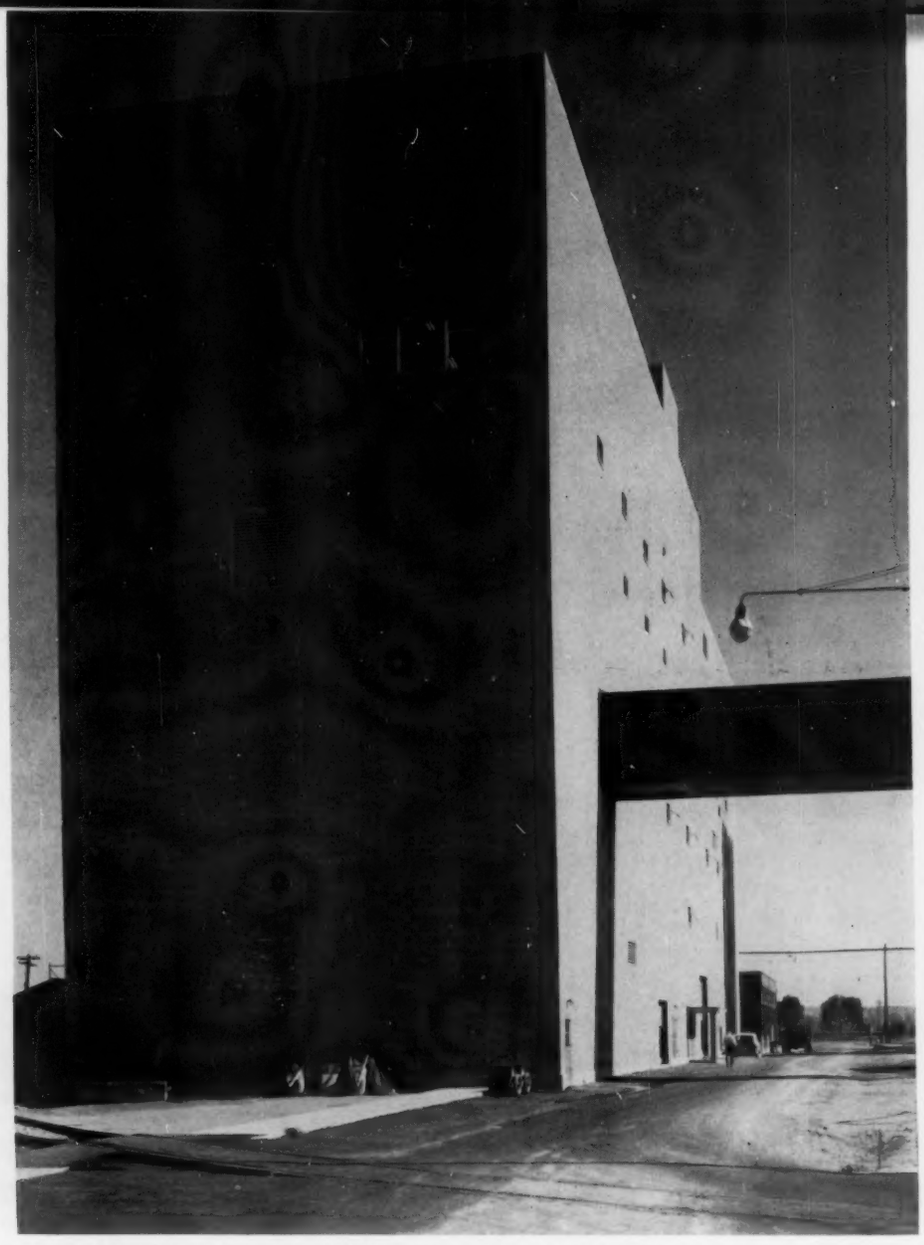
SPROUT-WALDRON

PULP MILL EQUIPMENT

PP/414

FROM THE FORESTS OF PENNSYLVANIA . . .

COMES HARDWOOD . . .



FOR HAMMERMILL'S NEW $6,000,000 Plant at Erie, to be pulped by . . .

The Neutracel* Process

PULP & PAPER tells—for the first time—the story of how Hammermill developed fine paper fiber from hardwoods

● The story of Neutracel begins in the forests of northern Pennsylvania. The idea of supplanting softwoods by swift-growing and abundant hardwoods had intrigued Hammermill and many other fine paper manufacturers for years. How Hammermill solved this problem is told here by PULP & PAPER, for the first time.

Hammermill is strategically positioned on the banks of Lake Erie, at Erie, Pa., close to a bountiful supply of fresh water and within economic range of the Allegheny hardwood forest region. In its never-ending search for a perpetual supply of pulpwood, Hammermill's gaze has always returned to these forests at its doorstep. "If only . . ." But mills cannot run on "if only's" and a great deal of intensive research is required to make such wishful thinking a commercial reality.

One of the most fascinating aspects of the Neutracel story is the role of engineering and research. The importance of the scientist has always been emphasized at Hammermill, stemming from the fact that co-founder Otto F. Behrend is a chemist. Dr. Behrend retired in 1953 after 55 years service but the scientific tradition he started at Hammermill continues to grow in importance.

Hammermill pioneered the development of the use of sulfite pulp in fine papers 57 years ago. This was one of the most significant developments in

*Neutracel is a registered trademark of Hammermill Paper Co.

the fine paper industry. Throughout the years this emphasis has resulted in Hammermill's place of eminence in the industry.

FIRST HARDWOOD STUDIES IN 1900'S—When Hammermill's chemists had studied possibilities of sulfite pulping of hardwoods in the early 1900's, they were unsuccessful. In 1930, they again tackled the problem but it was obvious that resultant pulps were not acceptable for the quality papers they needed. Some other means had to be found to get the qualities for Hammermill papers.

Other pulping possibilities for hardwoods were investigated for some time in the research lab. Initial work was done with sulfate and Hammermill found they could get good results with kraft and come fairly close to strength and other requirements.

Not satisfied that sulfate pulping was the best answer, however, Hammermill investigated the semichemical process. Intensive fundamental research was carried out in the Hammermill research laboratories, supplemented by important work at the U.S. Forest Products Lab at Madison, Wis. Royal Rasch, head of pulping research at Hammermill, said this fundamental work, together "with the help provided by friends in the industry," pointed the direction to go.

This fundamental work indicated that the semichemical process was the most promising pulping procedure. Certain improvements in the existing techniques would be necessary to produce the qualities of cleanliness, strength, brightness and other desirable properties which were required in the manufacture of Hammermill papers. The possibilities of producing the desired pulp by a process based on a semichemical cook appeared so attractive that the decision was made in 1949 to concentrate all efforts on this approach.

A CALCULATED RISK—SKIPPED PILOT STAGE—As Dr. Donald T. Jackson, technical director, says "no one had ever made a commercial semichemical pulp that satisfied our high quality requirements, but our research work looked so promising that we decided to take a calculated risk and proceed directly to install a 30-ton per day pulping plant. This of course eliminated the usual small pilot plant stage generally found in such a development."

This gamble of moving from laboratory facilities to full production paid off handsomely. Kurt Neuenfeldt, chief engineer, estimates that this represented a time saving of two to three years in the full commercial development of the process.

Here's What Faced Hammermill Paper Co. . . .

THE PROBLEM	**You have a plant which is the largest producer of fine paper in the world. But, and it is a big "but," expensive and dwindling softwood stands threaten to limit its industrial development.**
GIVEN	**At your doorstep is a supply of hardwoods—but they cannot be satisfactorily pulped by any known process.**
TO FIND	**A means of producing a satisfactory hardwood pulp to eliminate dependence on softwoods.**

The question naturally arises whether Neutracel is actually a different pulp from the usual semichemical pulps. R. P. (Tom) Price, manufacturing vice president, is very definite in his answer.

"The fiber characteristics of Neutracel and its performance in the paper mill put it in a class totally apart from any other semichemical pulp we have seen," said Mr. Price. "We believe that this is due to the many innovations and improvements which we have introduced beyond the conventional semichemical process." These innovations are the subject of U.S. patent applications which are expected to be granted soon.

What are the qualities of this new pulp? "Neutracel is an exceptional pulp in many ways" says Fred Bahrenburg, general supt. "It is equal in all respects and superior in many to sulfite pulps from softwoods. Good brightness and opacity combined with high strength and exceptional cleanliness makes it ideally suited for our grades."

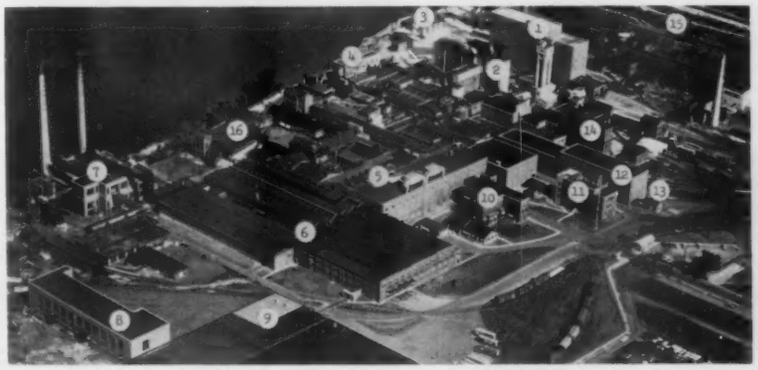
WHAT HAPPENED IN THE PAPER MILL—PULP & PAPER asked R. S. Young, manufacturing supt., about the use of Neutracel in the paper mill. "It is not a panacea for everything—equally good for all grades," he said. "Most fine papers today are blends, as no one fiber combines all the properties for a balanced sheet such as we make" (although he did show PULP & PAPER a beautiful sheet made from 100% Neutracel pulp).

One of the important advantages gained from Neutracel in paper mill operations is the small power consumption required for stock preparation, reports Clarence Kingston, paper mill supt.

FIRST CAME A 30-TON PLANT—The Neutracel development really got off the ground in Feb. 1952 when the first cook was made in the 30-ton per day plant. The start-up proceeded so smoothly that by March the plant was producing 30 tons per day on a sustained basis.

The 30-ton plant used a 4,300 cu. ft. vertical Manitowoc digester which was converted from sulfite production. The defibered stock was refined in Sprout-Waldron refiners. It was then blended with spruce sulfite and bleached in a conventional three stage system using chlorine, caustic extraction and calcium hypochlorite.

The operation of the 30-ton plant



HAMMERMILL FROM THE AIR. This latest air view (same as our cover picture) shows Hammermill Paper Co's. Erie, Pa. fine paper mill, reportedly the world's largest. (**1**) New $6 million Neutracel plant. (**2**) Digester building. (**3**) New chemicals unloading building. (**4**) Sulfite bleach plant. (**5**) Paper mill. (**6**) Finishing operations. (**7**) Power plant. (**8**) Air-drying. (**9**) Warehouse. (**10**) Main office building. (**11**) Laboratory and research. (**12**) Pulp storage. (**13**) Original office building (1898). (**14**) Woodroom. (**15**) Woodyard. (**16**) Water filtering plant.

was so successful that plans were immediately started to expand production to 100 tons per day. This involved construction of the new $6,000,000 pulping and bleaching plant and conversion of two large digesters to Neutracel production.

THEN, THE NEW BIG PLANT—The new plant was designed by Hammermill's engineering, operating and research staff. The detail engineering and construction was done by Rust Engineering Co. under guidance of Kurt Neuenfeldt, Hammermill's present chief engineer who was originally project engineer for the job. Its present capacity is 100 tons of bleached Neutracel per day and buildings and equipment have been sized for quick and economical expansion to 200 tons.

In designing the plant, extensive

Pertinent Facts About Hammermill

Hammermill Paper Co., world's largest fine paper producer, nationally advertises 22 grades distributed exclusively through sales agents. There are some 167 domestic Hammermill agents in 125 cities handling Hammermill lines and there is wide export representation.

Hammermill was founded in an open wheat field in Erie, Pa. on the banks of Lake Erie in 1898 by Ernst R. Behrend and Dr. Otto F. Behrend in conjunction with their father Moritz. The company got its name, in anglicized form, from the Behrend's original enterprise, Hammermuehle, near the Wipper River in Germany.

Starting with two small paper machines making about 30,000 lbs. a day with a few employes, Hammermill now has capacity for 640,000 lbs. of net packed paper a day and employs some 2265 persons.

The mill today is on a 220-acre site with 23 acres of buildings. Twelve acres of lawn set the atmosphere of cleanliness. Daily water intake from Lake Erie is around 30,000,000 gals.

About 170,000 cords of hard and softwood are used annually; the softwoods from Canada and hardwood from neighboring forests in Northwestern Pennsylvania. Other raw materials include 20 million lbs. of sulfur, 26 million lbs. of limestone and 170,000 tons of coal; all annually.

HEADING HAMMERMILL

NORMAN W. WILSON (left), Chairman of the Board; DONALD S. LESLIE (right), President and General Manager.

CAPACITIES—This integrated pulp and paper mill operation has capacity to produce about 165 tons of sulfite pulp and 100 tons of Neutracel pulp daily. Hammermill's seven machines have a net packed paper production capacity of 320 tons a day of fine grade papers. The largest machine is the 180-in. Rice-Barton Fourdrinier trimming 165-in. It makes about 100 tons a day of high quality papers. It is 288 ft. long and is capable of speed adjustments from 150 to 1,000 fpm.

A total of some 2,800 railcars and 2,800 truckloads of paper each year carry Hammermill products from the mill.

Officers of the company are Norman W. Wilson, chairman of the board; Donald S. Leslie, president and general manager; John D. Zink, vice president (merchandising) and assistant general manager; R. P. (Tom) Price, vice president (manufacturing); Bertram E. Claridge, vice president (wood operations, personnel and purchasing); John H. DeVitt, treasurer; and Mortimer E. Graham, secretary.

TRIO OF VICE PRESIDENTS (l to r): JOHN D. ZINK, Vice Pres. and Asst. Gen. Mgr.; R. P. "TOM" PRICE, Vice Pres. i/c Mfg.; BERTRAM E. CLARIDGE, Vice Pres. i/c Pulpwood Operations.

OTHER HAMMERMILL KEY FIGURES include (l to r) MORTIMER E. GRAHAM, Secretary; DR. DONALD T. JACKSON, Tech. Director; FRED E. BAHRENBURG, Gen. Supt.; ROBERT S. YOUNG, Supt. of Mfg.; KURT C. NEUENFELDT, Chief Engr.; ROYAL H. RASCH, Head of Research Section, Labs; SCOTT S. HOFFMAN, Supt. of Pulp Mill.

use of a Plexiglas dioramic model, scaled ¼ in. to a ft., was made. This model, built by Atkins & Merrill, Inc., saved many hours of detail drafting, minimized mistakes and eliminated obstructions. The model played an important part in completing the plant 6 monthes ahead of schedule.

NEW WAY TO TRAIN OPERATORS—"Training of operators presented some interesting departures from tradition," says Scott Hoffman, pulp mill supt. "Operators were trained from the Plexiglas model of the plant together with full-size mockups of the control boards made of paper cut-outs and plywood. Operators were instructed and trained long before the controls were delivered. Walkie-talkies were used during actual start-up operations."

ENCLOSED BRIDGE OF PIPES, 40 ft. above ground, connects the Neutracel plant with the rest of the mill and also serves for easy access from one plant to the other.

INTERESTING ENGINEERING FEATURES—Operating the plant has been described by one Hammermillite as "flying by instruments" because of the high degree of automation. The result of applying this important concept is that productivity per man has reached new high levels. One man per shift for pulping operations and one for bleaching constitutes the entire operating crew.

To facilitate maintenance work, the plant was designed with the cooperation and suggestions of Hammermill's maintenance department. One immediate benefit is that maintenance men are now familiar with the plant for any work that has to be done. Suggestions incorporated include an independent sound-powered phone system for tracing instrument wiring, etc. and the placement of Monorail lift equipment over process equipment.

Critical motors and pumps are interlocked to shut down a stage. An annunciator system sounds a panel horn and flashes a light when any motor stops.

The entire plant is pressurized including control panels, thus protecting control systems from gas and fumes.

Jamar-Olmen Co. furnished the heating and ventilating supply systems and exhaust units.

The washer floor and laboratory is supplied with filtered, temperature controlled air, maintained at a higher than outside pressure.

Each electrical sub-station and control panel is supplied with filtered, pressurized, and temperature controlled air to offset corrosion.

All floors of the bleach plant and pulp mill are equipped with exhaust units for the dissipation of internal heat.

Electric equipment such as switchgear and motor generators, etc., are located on the top floor where they can't be affected by water.

Power is transmitted through shielded cables in aluminum trays as are instrument tubings and control cables.

In event of main power supply failure, emergency self-contained lighting by Nickel Cadmium Battery Corp. is located on all stairwells and operating floors.

An important feature is that the bleach and pulp plants, housed as one unit, are separated by a 16-ft. built-in lift bay extending the height of the building. A Shepard Niles 2-way hoist can handle the plant's largest equipment. This is extremely important when installing or removing equipment.

Filtered air intake and forced air steam heating and ventilating are on all floors.

The three Impco valveless pulp washers are the largest in the world.

FLOW OF THE NEW PROCESS—Neutracel cooking is done in two 7,000 cu. ft. vertical digesters located in the sulfite pulp mill. Mixed hardwood chips of maple, oak, ash, beech, birch, elm and black cherry (12 species altogether) are used. Flow of cooking liquor is controlled by a Bailey Flowmeter automatically shutting down a Weinman stainless steel pump when the desired amount is reached.

Maximum digester temperature is 170°C controlled by Foxboro instruments.

Cooked chips are blown into conventional blowpits and are washed by displacement. No particular adjustments have been made in the digesters and there has been no difficulty in blowing them clean with conventional blow valves.

After washing, chips are moved by a totally-enclosed Weinman impeller pump to a surge tank and pumped to the Neutracel plant by Warren pumps.

The pulp plant is located in the south end of the new building and the bleach plant in the north end. The top floor of the pulp plant contains the main switchgear room and power distribution station. Here are General Electric 440 breakers and Limitamp to reduce line voltage from 13,800 to 2,400. Here are Reliance motor generators and Pelham Electric Mfg. Corp. transformers and switchgear equipment.

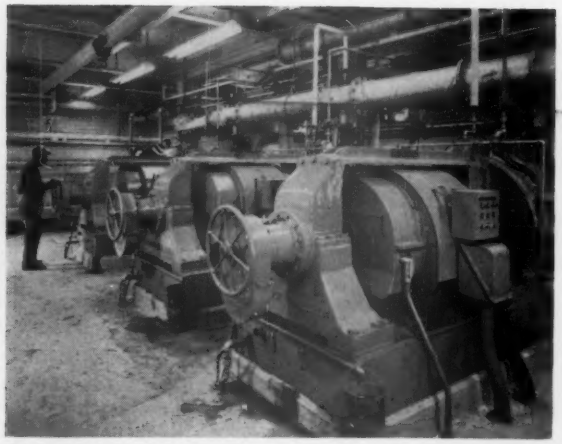
The third floor of the pulp plant features de-watering screens and de-knotters; second floor—decker, refiners and main control panel; first floor—defiberizing equipment and ground floor—storage chests, agitator motors and pumps.

Cooked Neutracel chips from the surge tanks are dewatered in a parallel series of three Impco vibratory screens. Accepted stock is routed by a Jeffrey screw conveyor to the preliminary defiberizing equipment where the knots and other uncooked chips are separated from the good fiber.

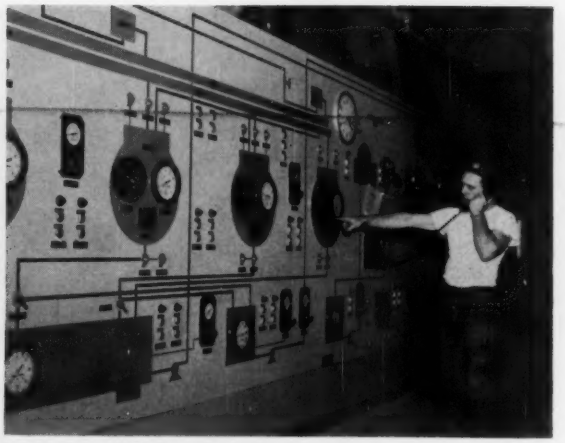
The defibered stock is then channeled to three parallel Allis-Chalmers LoHed knotter screens.

A 12-in. pipe under the knotters with a Jeffrey screw conveyor moves accepted stock to the knotter chest. Rejects are de-fiberized and returned to knotters; final rejects are sold. Accepted stock is thickened on a Valley Iron Works decker, 48 by 144 in., and is stored in a decker chest before final refining.

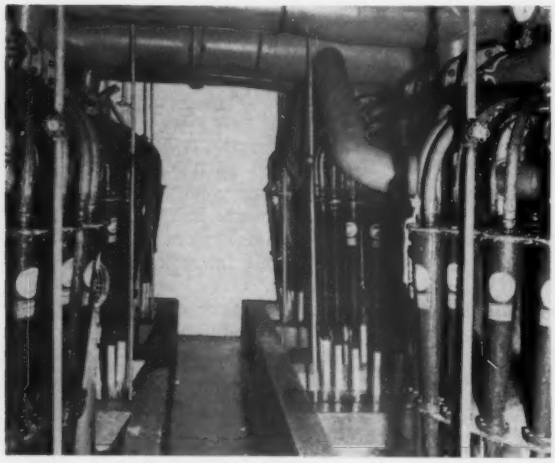
HOW STOCK IS REFINED—Refining is carried out by three Sprout-Waldron disc refiners. Each refiner is powered by a 450 hp, 900 rpm Electric Machinery motor. Stock from the decker chest is pumped through a 14 in. loop line with pressure in the line



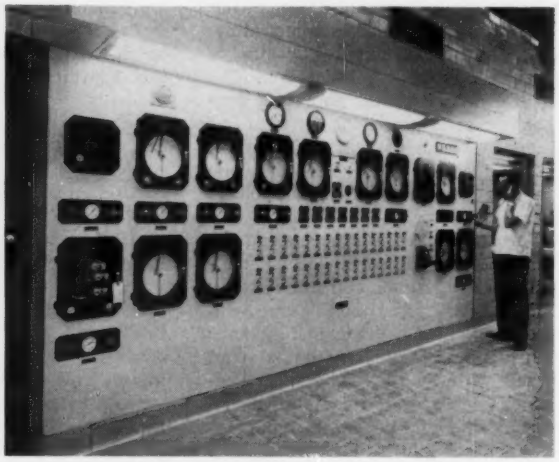
REFINING IS KEY STEP in production of Neutracel pulp. After dewatering, defiberizing and deknotting, Neutracel pulp is refined in these 3 Sprout-Waldon disc refiners. Each is powered by 450 hp, 900 rpm Electric Machinery motor.



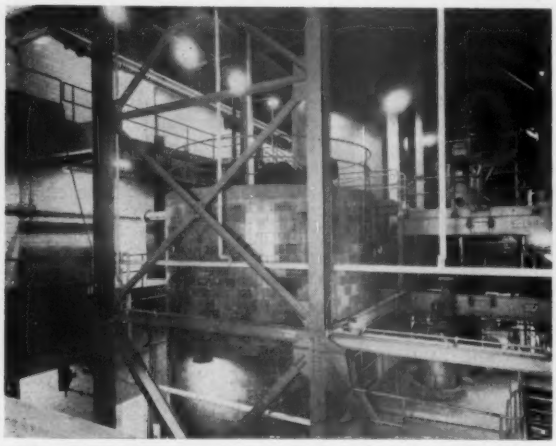
"FLYING BY INSTRUMENTS" is how one Hammermillite described operation of Neutracel plant because of high degree of automation. Result of applying this important concept is that productivity per man has reached new high levels.



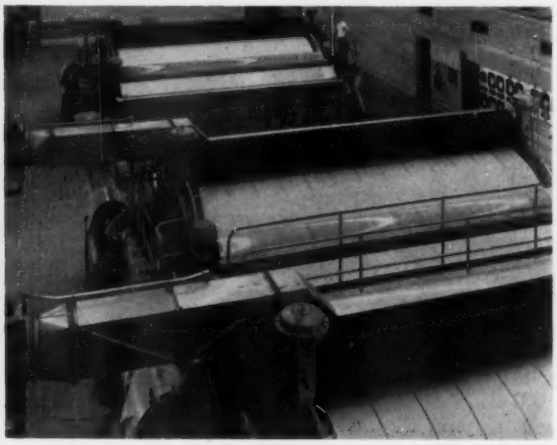
EXTRA CLEANING emphasizes Hammermill's stress on producing top quality pulp for top quality fine papers. After refining in disc refiners stock is further cleaned in this battery of 220 Bauer Cleaners.



INSTRUMENTATION in Hammermill's new plant was designed to give maximum automatic operation from centralized locations. Taylor Instruments Inc. provided this 15-ft. main control panel in bleach plant.



BLEACH SECTION of Neutracel plant features designs found in most up-to-date bleach plants. Brown stock chest by Stebbins is 27-ft. high, 18-ft. dia. To right are chlorine pre-retention tube and chlorination tower.



LATEST IMPROVEMENTS in washer design are incorporated in these three valveless washers, 11.5 ft. by 20-ft., largest made by Impco, with forming press and rubber covered couch roll. Oscillating high-pressure Broughton showers clean wires.

controlled by a 10 in. throttling valve. The loop line is equipped with an Eriez magnet to protect the refiners from tramp iron. Refining is carried out at about 5% consistency. Quality is controlled by visual comparison with standard samples of refined stock.

Stock chests are provided for each operation; de-watering, defiberizing, deknotters and refining. All chests are Semtile lined by Stebbins and have Black-Clawson agitators powered by Reliance motors.

Piping for stock conveyance throughout the plant is Spiroweld 14-gauge galvanized iron fabricated by Naylor Pipe Co.

Refined Neutracel pulp flows back to the mill proper for screening over Impco stainless steel flat screens and for further cleaning in a battery of 220 Bauer 3 in. Cleaners.**

Two Valley 48 by 144-in. thickeners bring consistency to 4% before the stock moves by an Allis-Chalmers 16 by 4 suction pump to the brown stock chest, 18-ft. by 27-ft. high in the new bleach plant.

BLEACHING DONE IN 3 STAGES—Conventional designs found in the most up-to-date bleach plants are featured in Hammermill's new 3-stage plant. Washers are on the top or operating floor as is a Taylor instrument control panel. Lower floors contain seal or filtrate tanks and mixers, electrical control rooms and air compressing equipment.

Neutracel bleaching at Hammermill is conventional 3-stage: chlorine, caustic extraction and hypochlorite (calcium hypochlorite). Normal GE brightness is 86 to 88 but 90 can be reached.

All motors and valves for starting and stopping each stage are controlled from a console adjacent to the washer. All recorders for process flows and temperatures, as well as automatically controlled instruments are on the 15-ft. long main Taylor panel board.

These controls for motors and valves are located either on the washers or on the top floor in such a way that one operator can control the entire bleach plant. This operator also runs all control tests and maintains written records. All operating valves are motor controlled from the panel or operating floor.

Latest improvements in washer designs are incorporated in the three Impco valveless washers. They measure 11.5 by 20-ft. with a square footage of 720 ft. All washer vats are Semtile lined by Stebbins. Set washer speed is maintained by a Louis Allis magnetic clutch drive motor with Adjusto-Spede powered by Reliance 50 hp motors.

Each washer has a forming press and rubber covered couch roll. Oscillating high-pressure Broughton showers clean the wires. Washers are completely hooded with American Blower exhaust fans provided by Jamar-Olmen.

A Warren pump with 120-ft. head moves brown stock at 690 gpm from the stock chest to an Impco rubber lined chlorine mixer. The chlorinated stock passes to the bottom of a 4 ft. diameter, 25 ft. high rubber lined pre-retention tower.

Sharpsville Steel Fabricators, Inc. provided the steel tubes and tower for chlorine, caustic and hypochlorite.

Consistency is controlled ahead of this tower at 3.5% by a DeZurik regulator. A Fischer Porter Flowrator regulates the flow of stock and sets the production rate of the plant. Rubber lined pipe by B. F. Goodrich is used extensively throughout the bleach plant.

An Impco continuous pH sampler with a Milton Roy pump withdraws a sample of stock from the pre-retention tube for conveyance to the laboratory on the operating floor for analysis and control of chlorine addition.

FLOW OF STOCK IN BLEACH PLANT—Stock flows up through the pre-retention tower through a DeZurik shutoff valve and passes to the bottom of the chlorination tower. This tower is 16 ft. diameter by 58 ft. high and is rubber lined. Stock movement is provided by three Impco circulators powered by 30 hp Reliance motors.

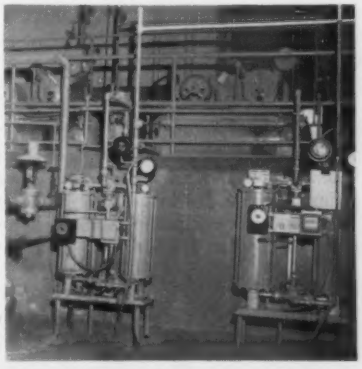
Stock is laundered off the top by a scraper; dilution water is added and stock drops to a Warren rubber-lined chlorinated pump for delivery to the chlorine washer. All washer filtrate tanks are 10- by 11-ft. and are rubber-lined steel.

Washed stock is couched off, shredded and blended with about 3% caustic soda and steam by an Impco double-shaft mixer under automatic control to maintain stock temperature. Stock discharges into the caustic tower at 10% to 12% consistency.

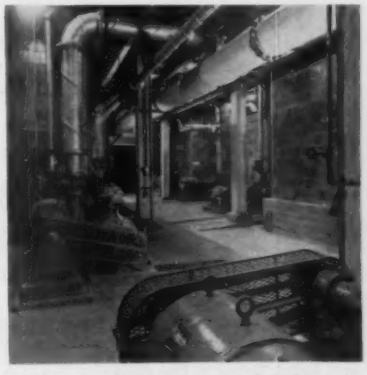
Stock flow is downward in the 9 ft. diameter by 48 ft. high Semtile-lined caustic tower to a dilution ring near the bottom where water is added to bring stock to a "pumpable" consistency. An Impco circulator in the bottom of the caustic tower helps maintain this consistency. The tower is equipped with temperature bulbs to aid in controlling this dilution rate into the bottom of the tower.

**Bauer Cleaners were invented by Hammermill and are covered by U.S. Patent 2,377,524. Bauer Brothers Co., Springfield, O., has been licensed to manufacture and sell them for pulp and paper industry.

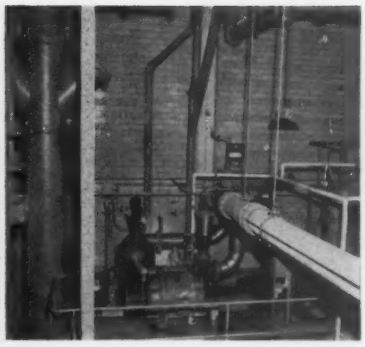
NEUTRACEL COOKING LIQUOR is made in these two A. J. Knight Stoneware sulfiting towers. Here dilute soda ash solution is sulfited with SO_2 to cooking liquor condition, controlled by a Beckman ph meter.



LIQUID CHLORINE is unloaded from tank cars in Hammermill's new chemical unloading building with the aid of compressed air using an Ingersoll-Rand air compressor (background) supplying air through a Lectrodryer (foreground) to the car. This forces the liquid chlorine to a Hooker chlorine evaporator in the bleach plant.

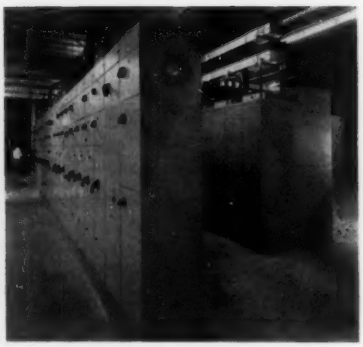


STOCK CHESTS are provided for each Neutracel pulping operation; dewatering, defiberizing, deknotting and refining. All chests are Semtile lined by Stebbins and have Shartle agitators powered by Reliance motors. Naylor Pipe Co. fabricated stock conveyance piping of Spiroweld 14-gauge.



BLEACHED NEUTRACEL PULP flows through this Transite pipe to the paper mill. DeZurik consistency regulator controls consistency. Flow is controlled by a Fischer & Porter regulator.

STEAM FOR NEUTRACEL PLANT is reduced at this station from 150 lbs. to 35 lbs. Valves are by Powell; pressure control valve by Mason-Neilan and Unibestos insulation was made by Gram.



ALL ELECTRIC EQUIPMENT such as switchgear and motor generators are on top floor of Neutracel plant to offset possibilities of flood damage. This is General Electric switchgear equipment.

A Warren Ni-Resist pump delivers uniformly mixed stock through a remote controlled valve to the caustic washers.

Stock discharges from caustic washer at 12% consistency into an Impco double-shaft mixer where 2% calcium hypochlorite and steam are added as the stock drops into the hypo tower. This 14 ft. diameter, 48 ft. high Semtile-lined steel tower has two Impco circulators in the bottom. The bleached stock is pumped to the hypo washer by a rubber-lined Warren pump.

Washed stock is pumped at 12% consistency by an Impco-Cook pump to a high density bleach storage tank, 26 ft. diameter, 66 ft. high, adjacent to the plant. This reinforced concrete tank has Stebbins tile lining in base.

Bleached stock is recovered from this tank with a DeZurik system mining nozzle, with a control to bring consistency down to 5% for delivery to the paper mill. It is pumped to a storage tank through Transite pipe.

This slush pulp is recovered from the tank and pumped to beaters through a pipe loop running around the beater room. Neutracel is taken from this loop and blended with other pulps according to the grade of Hammermill paper being produced.

HOW INSTRUMENTS ARE USED—Neutracel plant instrumentation was designed to give the maximum automatic operation from centralized locations. In the pulp plant a 28 ft. long centralized control panel was located on the main floor. A second 8 ft. long panelboard on the floor above was designed to allow operations through the main panel if the operator was on this floor.

Layout is such that the operator has at his command all necessary information to regulate the equipment in this plant and to schedule the operation of the various equipment.

In the bleach plant the 15 ft. main control panel included recording equipment and indicating equipment for flow, liquid level, pressure, temperature and consistency. Integration of all flows was also provided. An annunciator system indicated abnormal conditions with an audible alarm. An acknowledgment button for this system cuts out the sound but leaves the annunciator indication in operation until the abnormal condition is corrected.

Automatic to manual transfer switches permit the switching of all control operations to manual as necessary.

Chemical flow instruments are located on a separate 12-ft. panel on the operating floor.

CONCLUSION—After 4 years experience in producing Neutracel, how does Hammermill feel about its new process?

Donald S. Leslie, president, sums up the feeling as follows:

"We at Hammermill are very gratified with the success of the Neutracel program. Neutracel pulp has proven to be a basic contribution to the improved quality of our products and to cost reduction of our pulpwood and pulp. We plan to double our production of Neutracel pulp as quickly as possible."

How Chemicals Are Unloaded and Handled

Hammermill has a new chemical unloading building to handle chemicals destined for its new Neutracel plant. In this 50 by 97-ft. building facilities provide for unloading four railroad cars; two for chlorine and the other two for either caustic soda or soda ash.

Liquid chlorine is unloaded with the aid of compressed air using an Ingersoll-Rand pump compressor supplying air through a Lectrodryer to the car. This forces the liquid chlorine to a Hooker chlorine evaporator.

The chlorine gas then moves through a 2-in. Saran pipeline to the bleach plant mixers.

Caustic soda is pumped from tank cars in a strong solution to a storage tank. As caustic is needed, it is diluted automatically by Foxboro controls and is pumped to the bleach plant.

Soda ash is handled in a system engineered by Diamond Alkali Co. The dry soda ash is unloaded from hopper cars with a Nash Hytor pump and stored at a saturated 25% solution in a 36 ft. by 20 ft. tank, having a 5-car capacity. Automatic dilution is provided by a Fischer Governor control as the solution is pumped to Maurice A. Knight Stoneware sulfiting tower, 6 by 30-ft.

HOW SULFUR IS HANDLED—Sulfur is unloaded from rail cars by a Webster Mfg. bucket elevator which transfers sulfur to overhead storage bins with a 2-day storage capacity.

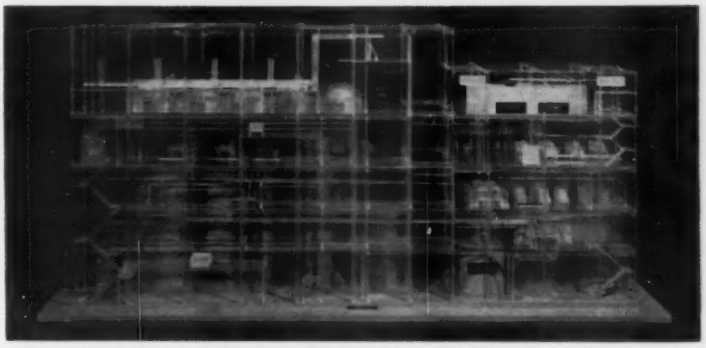
Jenssen supplied the new sulfur handling and melting system. Four vertical, tubular type sulfur melters include special decanting pots for removal of impurities. The molten sulfur storage tank has Chemical Lining Co. brick lining for insulation. A vertical pump transfers the molten sulfur through steam jacketed piping with Minneapolis-Honeywell control valves to the rotary burners.

Here again, automatic controls are important features. Instrument controls regulate steam pressure to melters and to the jacketed piping. Constant temperature is held in the molten sulfur storage tank for most efficient flow conditions and the sulfur level in the molten storage tank is controlled. When this level drops, a meter automatically fills tank to pre-set level.

An automatic sulfur level control valve on each supply line to the rotary burner keeps a preset level in

the burner to provide uniform surface of sulfur. With this combination of instrument control, no manual attention is needed to maintain a proper flow of molten sulfur to the burners, except that which is required for unloading the bulk sulfur.

After cooling, the sulfur dioxide (SO_2) is blown into the sulfiting tower. Here the dilute soda ash solution and SO_2 are sulfited to cooking liquor condition, controlled by a Beckman pH meter. A Buffalo pump then moves the cooking liquor to a 20-ft. by 22-ft. storage tank from which it is pumped to the digesters.



THIS PLEXIGLAS DIORAMIC MODEL of Neutracel plant by Atkins & Merrill, Inc., saved many hours of detail drafting, minimized mistakes and eliminated obstructions. Model played important part in completing plant 6 months ahead of schedule.

Other Features Mark Construction of New Plant

Construction of Hammermill's $6,000,000 Neutracel plant by Rust Engineering Co. under project engineer H. W. Vance, was originally scheduled for Jan. 1956, but completion was 6 months ahead of time.

Whenever possible Rust issued subcontracts to local Erie firms. Thus a considerable amount of the construction money was spent in the Erie area.

Bleached stock is conveyed in Transite piping by Johns-Manville. Saran-lined pipe by Dow Chemical Co. is used for bleach liquor. All pipe insulation consists of Unibestos insulation supplied by Union Asbestos Co., with Childers aluminum jacketing installed by Gram Asbestos Co.

OVERALL STRUCTURE—The overall building is 54 ft. wide, 221 ft. long, housing a pulping plant in the 90 ft. high south portion and a 106 ft. high bleach plant in the north end. A 16 ft. wide lift bay separates the two sections.

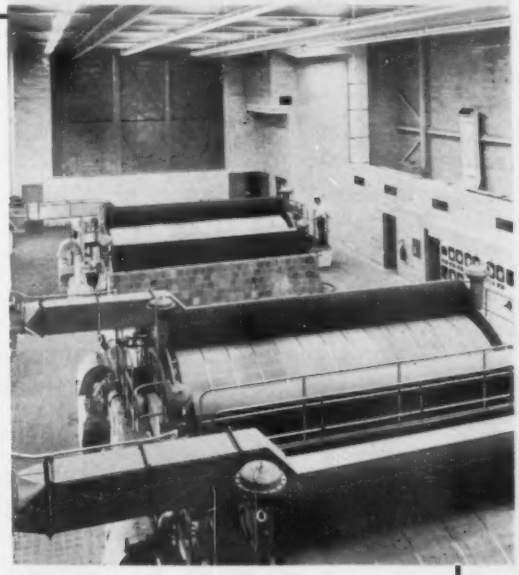
The entire plant is built upon concrete piling 35 to 40 ft. deep, supplied by Equipment & Supplies, Inc. Plant frame is of structural steel riveted construction by Rogers Structural Steel Co. Reinforcing steel came from Joseph T. Ryerson & Son, Inc. Exterior brick was furnished by Cleveland Builders Supply Co. The plant interior has walls of 8-in. facing tile by Handly, Brookville, Pa.

Indirect fluorescent lighting by Day-Brite is on all operating floors; incandescent, on others.

Additional water requirements necessitated by the new plant were provided by a new 60-in. dia. water intake pipe by H. K. Ferguson Co., and 2 Waco filters, manufactured by Impco.

Air Systems at
HAMMERMILL
BY
Jamar-Olmen Company

32 AIR SYSTEMS AND UNITS
PROVIDE PROPER VENTILATION
FOR THE *First* NEUTRACEL
SEMI-CHEMICAL PULP MILL



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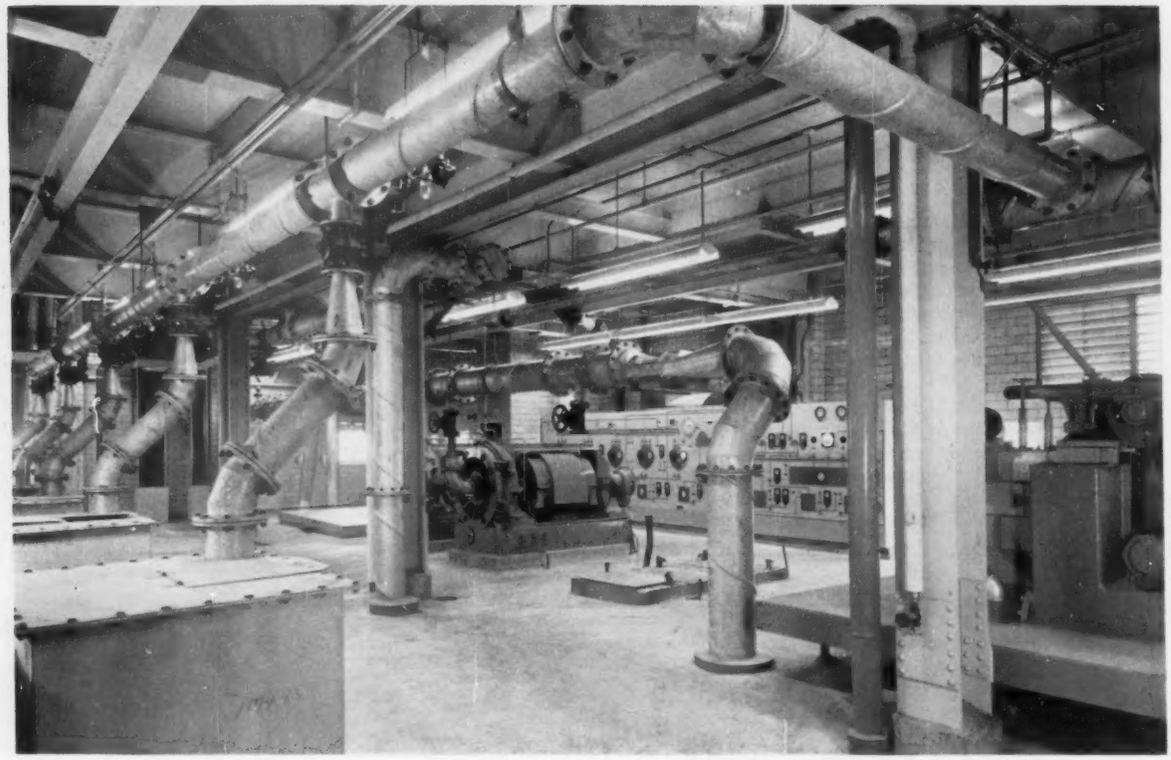
It's the DIFFERENCE

You *Can't* See that Counts!



Photo, courtesy Hammermill Paper Co.

It's easy to distinguish Naylor pipe from other lightweight pipe by its familiar spiral. But, what you can't see is the extra performance built into this lockseamed, spiralwelded pipe.

In paper mill service, Naylor pipe gives you extra strength and safety because of its exclusive spiral truss which acts as a continuous expansion joint to absorb shock loads, stresses and strains.

Naylor pipe sizes range from 4″ to 30″ in diameter with all types of fittings and connections. Both pipe and fittings are furnished in steel, alloys and stainless steel.

Write for Bulletins No. 507 and No. 525.

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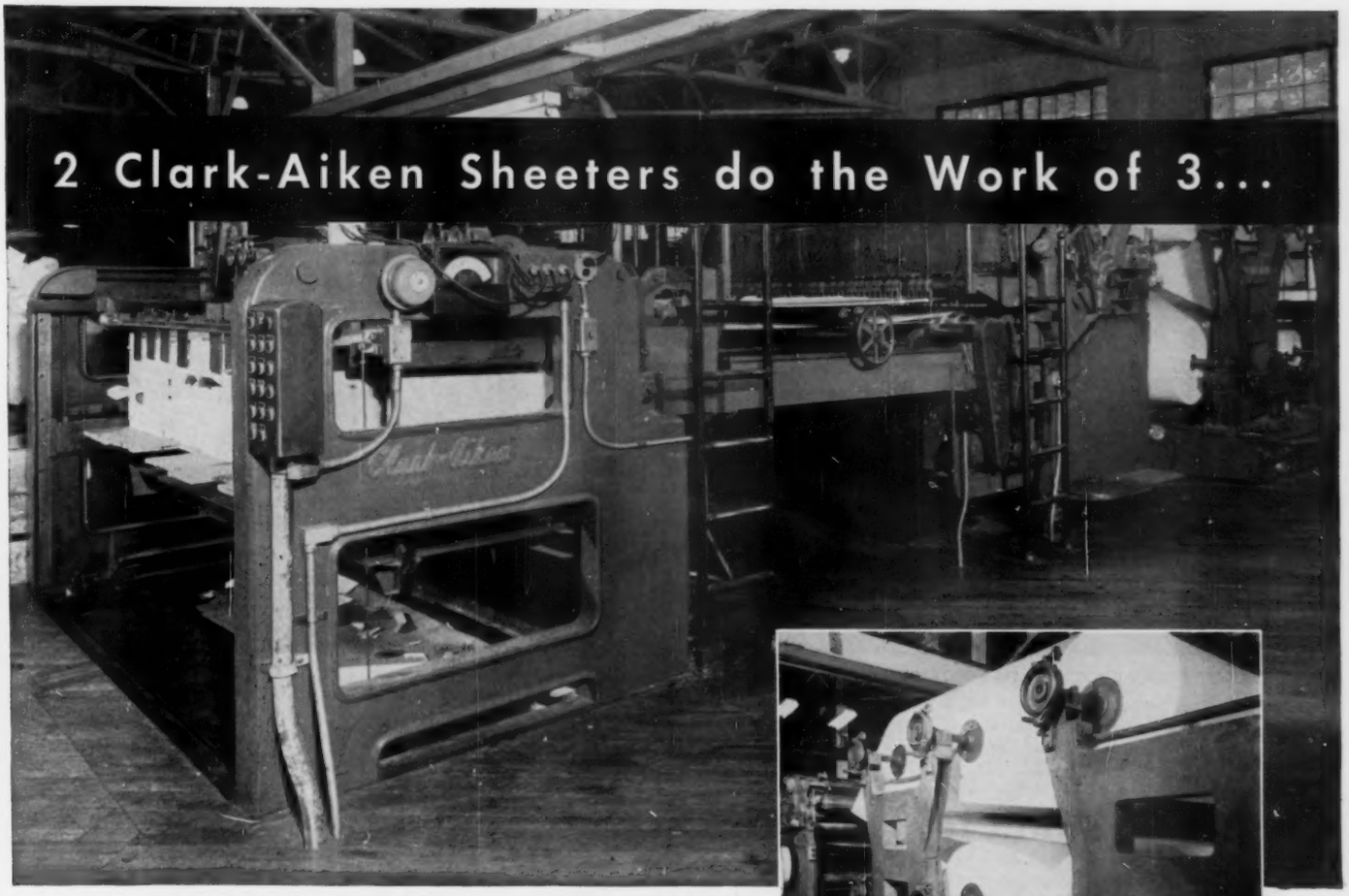
2 Clark-Aiken Sheeters do the Work of 3...



in Hammermill's Modernization Program

Built with precision, strength and rigidity, completely-coordinated Clark-Aiken Cutter-Layboy Units operate at sustained high speeds with unvarying split-hair accuracy.

That is why, in modernizing its finishing room, Hammermill Paper Company, Erie, Pa., ordered only two Clark-Aiken Type C units to replace three older sheeters formerly used.

"Since we installed them in 1951," reports Mr. C. I. Colby, Installing Engineer at Hammermill, *"our Clark-Aiken units have never failed to keep pace with our sheeting requirements. With correct roll stands and continuous operation, we enjoy sustained high-speed sheeting with sustained accuracy and negligible broke, regardless of width of rolls. We also have more working space and can work more efficiently."*

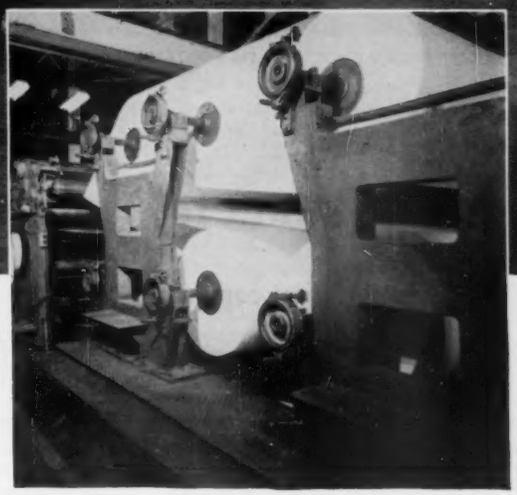
In addition, Hammermill enjoys the advantages of such Clark-Aiken "exclusives" as

Self-sharpening scissors-action "Spiral Shear" cylinder knife that insures clean, accurate cuts at all times.

Life-time non-stretch tapes that practically never need replacement.

Quick, accurate scale setting of slitters and joggers without use of tapes.

Clark-Aiken Cutters are made in four types with choice of conventional, overhanging or Vickery type layboy to exactly suit your requirements and operating conditions. Clark-Aiken engineers will gladly study your requirements and operating conditions and offer recommendations and estimates of economies they can make for you.

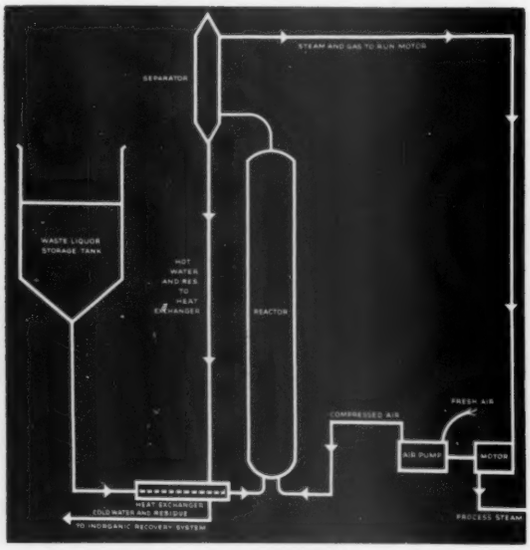


Clark-Aiken Turntable Type Roll Stands cut downtime for roll changes. Light-weight **Clark-Aiken Stub Arbors** save time . . . insure accurate roll alignment. Ask for bulletin.

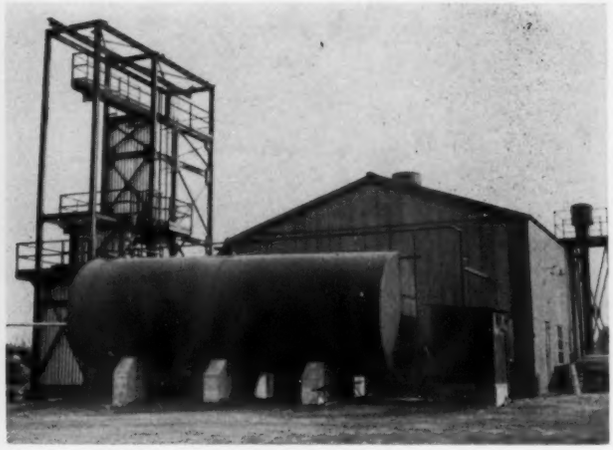
THE Clark-Aiken COMPANY

957 SPRINGFIELD ROAD

LEE, MASSACHUSETTS



ZIMMERMANN PROCESS LOOKS LIKE THIS in simplified diagram.



AND LIKE THIS in first commercial installation at Hammermill Paper Co., Erie, Pa. At left are liquid reactors and gas-phase reactors.

How Hammermill Solved Its Effluent Problem

First commercial operation in world of Zimmermann recovery and burning process is described for first time after PULP & PAPER visit

• One problem which Hammermill Paper Co. had to solve before proceeding with installation of the Neutracel process was disposal of the pulping effluents. The Pennsylvania Sanitary Water Board requires that any new installation such as this include provisions for waste disposal. At this time the recovery and burning process developed by F. J. Zimmermann of Sterling came to Hammermill's attention. Studies indicated its feasibility and a decision was made to install the first large scale pilot plant.

By this process, organic matter is burned in an aqueous solution. It is proposed as treatment for all organic waste.

To get straight-from-the-shoulder facts, PULP & PAPER visited this original installation, photographed the basic components and talked to the men who were in on it from the beginning. Here is the authoritative story on the first commercial installation of the Zimmermann process as approved by the inventor, F. J. Zimmermann of Sterling Drug Inc., and the user, Hammermill Paper Co.

FIRST OPERATION IS A SUCCESS—The first commercial operation of the Zimmermann process in the world has been a virtual success from its start-up in Jan. 1954.

At Hammermill, world's largest fine paper manufacturer, Neutracel effluent is treated. A process for the recovery of the cooking chemicals has been worked out and small pilot plant operation has indicated that the method has commercial promise.

Power generating equipment was not included in this initial installation but is an indicated part of any full scale commercial installation.

Raw, spent liquor from Hammermill's Neutracel plant is pumped through a 850 psig piston-type stainless steel Worthington pump at 33 gpm to the Zimmermann oxidation plant.

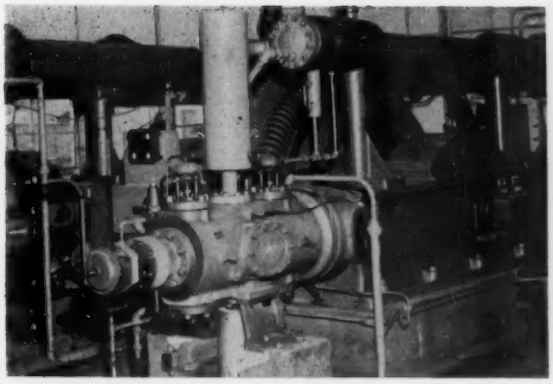
FLOW DESCRIPTION—The compressed liquor is mixed with compressed air from a Worthington 600 hp, 800 psig compressor, and is heated to about 340° F in a series of 3 American District Steam preheaters. The compressor is equipped with a Worthington filter silencer on the intake and a Struthers-Wells pressure chamber.

The heated mixture then passes in series through 3 reactors, each 34 in. diameter and 30 ft. high. These are type 316 stainless steel clad plate and are equipped with single baffle plates. Lukens Steel Co. furnished the stainless clad plate and M. W. Kellogg Co. fabricated the reactors.

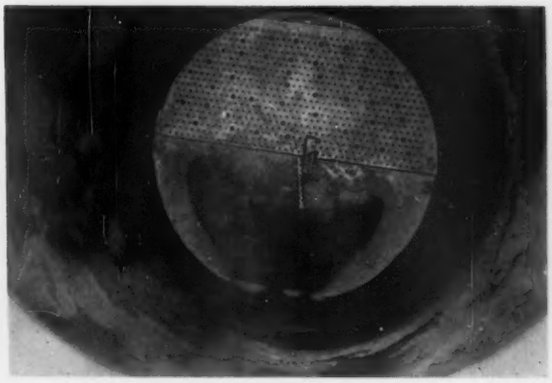
The temperature in reactors rises to about 485° F and substantially all organic matter is oxidized to carbon dioxide and water. Inorganic material is converted to sodium sulfate. From the third reactor the liquor moves to a gas-liquid separator. This cylindrical vessel with an interior nozzle is about 16 ft. high and emits gases through the top while liquid is drained through the bottom.

Oxidized liquor returns to the first preheater where it exchanges heat with the raw liquor coming in. A water cooled heat exchanger cools the oxidized liquor to below boiling point before it moves to the chemical recovery system.

The gases (nitrogen and carbon dioxide), steam and any unconsumed oxygen pass through a second heater where they exchange heat with the mixture of raw liquor and air, partially cooling the gases. Cooled gases go to a second separator where condensate is drained. Gas flows through a Fisher



COMPONENT PART OF ZIMMERMANN recovery process is this huge 600 hp, 800 psi Worthington compressor. Here compressed spent Neutracel liquor is mixed with compressed air. A P&P Photo.



ONE OF THREE REACTORS fabricated by M. W. Kellogg Co. with type 316 stainless clad plate by Lukens Steel Co., 30 ft. high, 34 in. dia. Picture is taken looking down from top of reactor at single baffle plates.

pressure relief valve where it is reduced from 750 psig to atmospheric pressure, through a silencer to the atmosphere.

The Hammermill plant is so designed that the chemical oxygen demand is reduced by over 90%. The resultant solution contains sodium sulfate, some sodium acetate and virtually no organic matter. When the power unit is added the chemical oxygen demand will be completely eliminated.

The Hammermill plant was constructed by the Dravo Corp. of Pittsburgh. Engineering and design were under the direct supervision of Mr. Zimmermann and his staff.

WHAT DESIGNERS SAY—Sterling Drug Inc. says all fuels burn smoothly and continuously when dissolved or suspended in water if kept under pressure and fed with the correct amount of compressed air. The heat generated is transmitted directly to water to form steam instead of through customary metal heat exchange surfaces of the conventional boiler.

A choice of engineering varieties can be added to the essential air pump, liquor pump, liquid phase reactor, gas phase reactor gas engines to run the pumps and deliver power, depending on the end products desired.

In this process, liquor and air at a specified temperature and pressure are introduced into the liquid phase reactor, which is an empty steel vessel with a stainless steel lining. This reactor is equivalent to the fire box and boiler of the conventional steam generator. Since the heat of combustion is transmitted immediately to the surrounding water, temperature in the reactor is never higher than the temperature corresponding to the steam pressure desired. This temperature can be controlled by regulating the back pressure valve.

The higher the temperature of the combustion, the faster the reaction and the greater becomes the capacity of a reactor vessel. Practical temperatures range between 450° and 700° F. At the lower temperatures, the combustion is slow and apt to be incomplete. Some liquid water is necessary for this type of combustion, partly to insure smooth oxidation and partly to remove the ash.

The Zimmermann process does not require a specially prepared boiler feed water to generate steam since the water of the waste liquid itself is converted into steam.

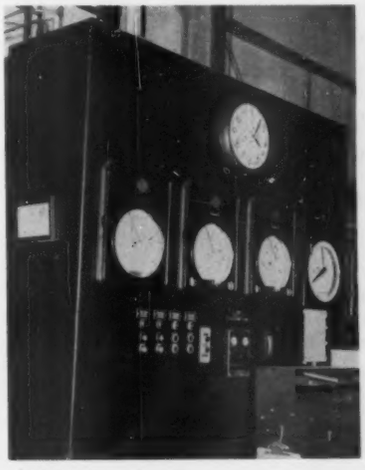
After the fuel is burned in the liquid phase reactor, the gases and remaining liquid leave the reactor chamber and are led to a separator. The gases are saturated steam, carbon dioxide, nitrogen and the liquid water which contains ash. The liquid and solid portions are removed from the gaseous portion by the separator and their energy used to preheat incoming liquor. The gases are then superheated by a unique process. They are then led through a heat exchanger to a catalyst where further oxidation takes place. This oxidation removes the last trace of oxidizable material and superheats the gases preparatory to their use for generating power, or providing process steam, or both.

The gases can also be separated into condensibles and non-condensibles. The non-condensibles, nitrogen and carbon dioxide, at high temperatures contain practically enough energy to run the air compressor. The condensible gas, superheated steam, can then be used to generate electricity by being fed to a condensing turbine. It can also be run through reducing turbines to give process steam at a desired pressure.

In generating process steam at 150 lbs. per sq. in., boiler efficiencies of 70% to 80% are obtainable. In addition to providing sufficient power to operate the process, a substantial quantity of electricity can be generated at around 4 mills to 5 mills per kwh.

Sterling Drug Inc. says the economies of the process lie in its high boiler efficiencies, the rugged construction of the equipment that will enable it to run for very long periods without maintenance, and its low operating cost. Only one man per shift has been needed in the two years operating experience at Hammermill.

Among applications of the Zimmermann process is the utilization of spent paper pulp liquors, for making power and recovery of cooking chemicals. The steam generated is sufficient to run the pulp mill and all cooking chemicals delivered to the process are recovered. In addition, where the kraft process is used, virtually all objectionable odors are eliminated.



CONTROLS for Zimmermann process are maintained from this panel with Bailey recorders and Fischer & Porter meter.

The Old Timer

West Coast Forestry Students Then— Now Look!

P & P's Old Timer Digs Up Dirt on Bob Bundy, George Holt, Nelson Hartnagel, Ferdie Schmitz, Ben Natwick, Eric Anderson, Axel Brandstrom, Alexander Koroleff.

The Old Timer was saying, "Things sure do change. It used to be you could count all the pulp and paper mills in the state of Washington on the fingers of one hand. Now it takes all your fingers and toes and you're still shy a few."

The other day, The Old Timer scouted out a front-line observer who has helped train many industry leaders. He is **BROR L. GRONDAL,** professor of forest products, college of forestry, University of Washington, since 1913.

"Yes, times do change," said the professor. Take the days when Robert Bundy, George Holt, Nelson Hartnagel, Ferdie Schmitz and Niles Anderson were studying here and compare them with the present. Right now I have five jobs for graduates but there's nobody to fill them. Twenty-five and 30 years ago things looked very, very black. Students griped about spending so much time in school because it cost so much. The chance to step into good jobs was remote. There was no promise; no future.

"The men who succeeded," he said, "seemed to be the ones who were conservative in school—not flashy, but steady pluggers. An excellent (and the only) place to start was at the bottom.

A Seattle lad, class of '27, **ROBERT E. BUNDY,** is now executive vice president of Fibreboard Products, Inc. He first labored in the woodroom of Fibreboard's Port Angeles, Wash., mill, later moved into the lab and on up through the ranks. A '28 grad, **NELSON HARTNAGLE,** who also worked up through the mill and is now assistant plant manager and logging manager for Fibreboard at Port Angeles. He kept time, scaled, cruised and set chokers for logging outfits during school vacations.

First job for **GEORGE HOLT,** '27, was as mill worker at the old Rainier Forest Products at Shelton, Wash., later Rayonier. Mr. Holt moved on to Hoquiam where today he is resident manager of Rayonier's mill. **FERDINAND SCHMITZ, Jr.,** '27, now president, Berger Engineering Co., Seattle, began his career at Shelton, where he worked in every department from woodroom on up.

NILES M. ANDERSON, who built the Marathon Corp. of Canada mill in Ontario, now retired in San Diego, graduated in '25 and went on to build or help run several mills from Puget Sound and Ocean Falls, B.C., to eastern Canada. He helped build the Anacortes, Wash. mill (now Scott's), first venture in market pulp by his famous uncle, Ossian Anderson.

BEN NATWICK, class of '38, is western representative for Appleton Wire Works and son of A. F. ("Buff") Natwick, resident manager of East Texas Pulp & Paper. Another supplier of recent vintage is **EUDORE BERRY** '40, northwest sales engineer for Dorr-Oliver, Inc. **ERIC A. ANDERSON,** '32, is professor in charge of department of wood technology at Syracuse; Prof. **JIM BETHEL,** '37 teaches forest products at North Carolina State, Raleigh, N. C.

Just as PULP & PAPER's "Old Timer" picked up his notebook and prepared to leave, in walked Prof. **J. K. PEARCE, '21,** head of logging engineering, U. of Washington. He said, "Don't forget the boys who get out the logs" and he recalled many of his ex-students:

AXEL J. F. BRANDSTROM, now consulting logging engineer for Celgar Development Co. Ltd. in B.C., and **GEORGE W. O'BRIEN,** '18, vice president in charge of logging for Powell River Co. **ALEXANDER KOROLEFF** came over from Russia while a youth and graduated with the class of '21, and was head of the Woodlands Research Institute of Canadian Pulp & Paper Association. He's now "retired" and in Dehra Dun, India, setting up a logging research center. **THOMAS A. WALBRIDGE,** '42, is chief logging engineer for Bowaters Southern Paper Co., Calhoun, Tenn. **ART GREELEY,** '34, is regional U.S. forester for Alaska.

The Old Timer says, "We're not overlooking the U. of W.'s chemistry and engineering department. We'll pay them a visit one day."

McAlear in Europe

James McAlear, manager, pulp and paper sales, Mason-Neilan Regulator Co., left in early April for a 6 weeks tour of Britain, France, Germany, Holland, and Scandinavia.

How This Engineering Firm Has Grown

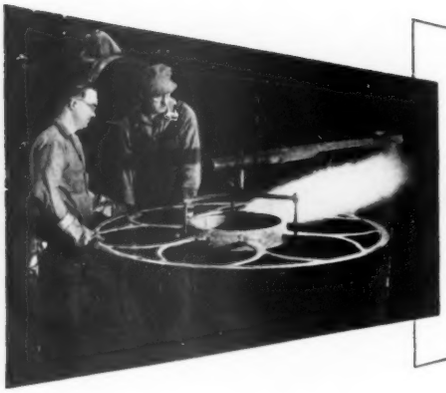
Expansion and improvement of this industry has accelerated increases among engineering specialists, and a case in point is 10-year-old Central States Engineering, Inc., now moved into expansive new offices at 1000 West College Ave., Appleton, Wis. (Phone Regent 4-1488). From a one-man company—founder and President WILLIAM A. J. MITCHELL—it now has an 11-man staff.

Here is a glimpse thru three rooms of new quarters. Telephoning, in far room, is HAL ABRAMSON. In middle room, LLOYD KLINGER (left) is talking with BILL MITCHELL. In foreground, FRANK PETIT works at his desk.

Mr. Mitchell, born in Milwaukee, Aug. 1, 1906, graduated from U. of Wisconsin, was with Kimberly-Clark Engineering before starting on his own in Feb. 1946 at 110 E. College Ave., Appleton. He is married, has three children. He has done work for Rhinelander, Mosinee, Northern and other Wisconsin firms and as far afield as Mexico. Engineers will be interested that his new drafing room is provided with "shadowless' light at 70 ft. candle level at drawing board height. Rooms in this picture are at 55-60 ft. candles. All partitions are clear glass, as shown.

TORKEL KORLING

HEATING A "SPIDER"...*Beloit Iron Works, Beloit, Wisconsin.*/ *For further details, please turn the page.*



HEATING A "SPIDER"

Bronze cylinder mould spiders, after being heated, are placed on the center shaft, where they cool to a tight shrink fit. The stacked spiders, seen in the photograph on the preceding page, are flanked by a row of differential drive case support stands and a group of helical gears. An experienced machinist, working with a specially tooled engine lathe, machines the mould to its required dimension for attachment of the cylinder mould rods and winding wire. During the manufacturing cycle Beloit cylinder moulds are accurately balanced to insure continuous formation of sheets of uniform caliper.

your partner in papermaking **BELOIT**

PAPER MACHINERY

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS., U.S.A.

WHEN YOU BUY BELOIT...YOU BUY MORE THAN A MACHINE!

Exclusive **Nose Baffle**

Keeps B&W Recovery Units

ON THE LINE LONGER

Forced outages and down time are expensive in terms of both lost production and costs involved in getting recovery units back on the line. Keeping those costly, non-productive periods few and far between,—to clean and remove smelt deposits—is the job of the NOSE BAFFLE found *exclusively* in B&W Recovery Units.

PROBLEM—How to shield the ash deposits on the superheater from the radiant heat of the furnace, and direct the flow of high-temperature gas from the furnace so that all of the gas is cooled to the same degree before entering the superheater. The function of the Nose Baffle is to solve this problem.

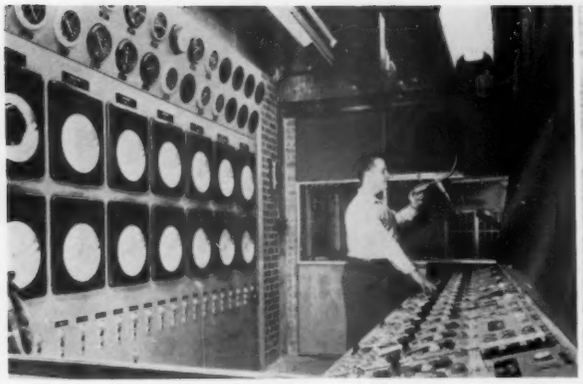
RESULT—Through the use of the B&W Nose Baffle, ash deposits in zone where superheater tubes are closely spaced are soft, powdery and easily removed. The B&W Nose Baffle cuts frequent, difficult cleaning to the minimum and completely eliminates cleaning outages. Lower operating cost may be realized from lower temperatures, improved cleaning and continuous operation. The B&W Unit stays on the line longer.

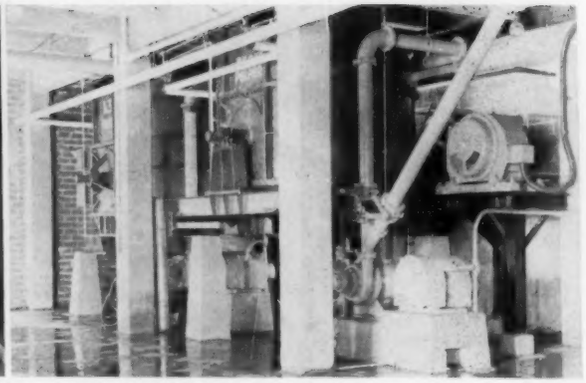
And high availability is one of the many benefits of a B&W Recovery Unit. For nearly 20 years B&W Recovery Units have demonstrated economical operation and high availability in leading pulp and paper mills. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

P-786

BABCOCK & WILCOX

BOILER DIVISION





FINGER-TIP CONTROL FOR SEVEN PULPERS. (Left) In this elevated centralized control room equipped by Bailey Meter Co. at Howard Smith Paper Mills, Cornwall, the operator has full vision of the stock preparation floor. On console are controls for pulps and chemicals for 7 pulpers. On recorder board behind him is 4-record chart for each pulper, showing quantity, addition sequence and mixing time for each batch of stock.

TWO OF PULPERS—THERE ARE 7 IN ALL. (Right) These Kennedy-Jones (E. D. Jones & Sons type) Pulpers at Cornwall, Ont., serve 5 machines. One machine—for board—requires three furnishes.

Automation Furnish Mixed for 7 Pulpers

• An elaborate stock preparation centralized control room at Howard Smith Paper Mills provides finger-tip control for both selection and quantities of pulps and chemicals for 7 Kennedy-Jones (E. D. Jones & Sons type) pulpers, which serve 5 different paper machines.

Four of the machines produce fine papers. The other is a board machine, requiring 3 furnishes—top liner, filler and bottom liner.

To each of the pulpers, flows and mixtures of sulfite, soda and broke pulps, in amounts desired, are controlled. At the same time, clay, size or alum can be fed to the pulper from chemical measuring tanks overhead. Bailey Meter Co. Ltd., subsidiary of the Cleveland firm, equipped the centralized control room with its control and recording systems.

William Kennedy Sons, Owen Sound, Ont., made the pulpers.

The system is housed in a newly-constructed stock preparation building, 200 ft. by 64 ft., three floors and a basement. It is located at the south edge of Howard Smith property, adjacent to the Cornwall Canal.

The structure contains storage facilities for the company's own slush and dried stock and also for purchased pulp. Size, clay and alum mixing plants are also located in the building.

One of several unique features of the 5-machine control panel is that some 8,000 separate wires, 50 miles in length, lead into the panel. The installation required 60,000 ft. of conduit.

Mill Men Build Own Church

This modern A-frame church, photographed by a PULP & PAPER editor, is product of labor of employes of Riegel Carolina Corp. mill near Acme, N.C. Working in shifts, the men built the beautiful structure for only $33,000. This growing residential area eventually will have its own post office, win its own spurs as Riegelville, N. C.

Georgia Town Puts Out Kraft Paper Newspaper

The Pelham, Ga., Journal, a weekly newspaper in South Georgia, recently published one special issue printed on Kraft paper. The Journal and International Paper Co. combined efforts to get across a message to the public. In effect, the brown-paper newspaper said: "Keep Mitchell County, Ga. Green."

The newspaper effectively reminded local citizens that Georgia's stake in woodlands is high and continued prosperity depends on conservation and cultivation of the state's forests.

Hercules Appointments

M. M. Bixby, director of sales, Paper Makers Chemical Dept., Hercules Powder Co., announces appointments of Robert R. Buss as district manager, Kalamazoo, Mich., Edwin R. Fait, district manager, Wilmington, Del., and Howard H. Parker asst. district manager, Kalamazoo.

Mr. Buss succeeds Daniel D. Cameron, named sales manager, PMC Dept., Hercules Powder Co. (Canada) Ltd. Mr. Buss has been acting manager of the Wilmington district and is a native of Kalamazoo, where he joined Hercules in 1932.

BIG LOADS... FAST MOVES

LORAIN

SELF-PROPELLED CRANE

speeds pulpwood handling for large Southern Mill...

Here, a 22½-ton Lorain Self-Propelled Crane, model SP-424, with a special gooseneck boom for better load clearances, and a trip double sling, is unloading pulpwood from woods trucks to rack cars for delivery to mill. 1 to 1½ cords are in each load —200 cords are handled per day. Most trucks are unloaded in 2 passes.

Scattered over a series of collection yards and mills throughout the South, 34 Lorains are cutting costs and speeding the flow of pulpwood to chippers for this well-known paper producer. These scenes from one of these busy operations show how a versatile and mobile Lorain Self-Propelled Crane handles big loads and makes many moves to meet daily schedules.

Lorain Self-Propelled Cranes are ideal for pulpwood handling at collection yard or mill. One-man operation cuts labor costs. Big, multiple tires for soft-ground flotation and plenty of tractive effort enable you to go anywhere. Rubber-tire mobility pays big dividends—takes the Lorain fast to *where* the wood is to be loaded or unloaded. In good weather or bad you get the same operating efficiency 24 hours every day. Long booms reach far to lift or stack pulpwood higher in less space . . . and there is a wide variety of slings, grabs and grapples to handle pulpwood in any condition.

Fit your mill or yard with a Lorain Self-Propelled Crane . . . five popular sizes—10, 15, 17½, 22½ and 30-ton capacities. Lorain also offers "special engineered" pulpwood "Rakes" on gantry, crawler or rubber-tires for pulpwood handling needs at the mill. Another reason why it will pay you to call your Thew-Lorain Distributor to help you find the way to lower costs!

A Concrete Bumper is interchanged with the sling (above) to "bump" wood into an even face on loaded cars.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN

How Bucyrus-Erie's Close Attention to Quality Pays Off in the Woods

Close attention — during manufacture — to the little things that mean outstanding quality . . . that's the basis for the fine performance you get in the woods with Bucyrus-Erie cranes. Take the steels they're made of, for example. To the naked eye there is very little difference, in comparison with other machines. But a microscopic examination of vital parts would show the many important *little* differences that together make such a *big* difference in performance on your jobs.

At Bucyrus-Erie, hammer forging, annealing, heat treating, case hardening, and flame hardening — each process is applied where it contributes most to strength, toughness, and hardness. The most modern arc welding is used, plus stress relieving by heat treating, where this will contribute greater strength and longer life.

See a modern Bucyrus-Erie in action. You'll soon know why owners agree that you get more for your money with a Bucyrus-Erie, and back that statement with their repeat orders.

230E56

Many gears and pinions are flame hardened to give them the strength and hardness needed for most efficient service.

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

Equipped with pulpwood grapple, this Bucyrus-Erie 22-B crane is loading specially designed pulpwood cars at Great Northern Paper Co. yards, St. Francis, Maine.

Here's the chain endurance you need for pulpwood handling

Solid elliptical barrel has extra metal for added wear-depth at the sprocket contact.
Broad top and bottom surfaces resist sliding wear.
Locked steel pin maintains sidebar spacing, insures proper lateral clearance, prevents binding of center link. Cadmium-plated pins available.
Pins locked against rotation in steel sidebar can be cottered (shown) or riveted.

LINK-BELT Class C Combination Chain provides long life under constant pounding

It takes a good chain to stand up to the constant tumbling and pounding of heavy pulpwood logs. That's why woodyards the country over select the economical Link-Belt Class C Combination — a sturdy mating of steel sidebars with center links of rugged malleable iron, cast steel or longer-wearing, file-hard Promal.

Choose Link-Belt chain whenever you're after the right answer to any drive or conveying problem. Included in this complete line are cast, combination, forged and fabricated steel types. And to add even greater wear life, ask for facts on specially-treated attachments. Contact your nearest Link-Belt office or authorized stock-carrying distributor.

SS bushed chain
Class H combination drag chain
Looking for the best chain for your needs?
LINK-BELT makes the complete line
Rivetless chain
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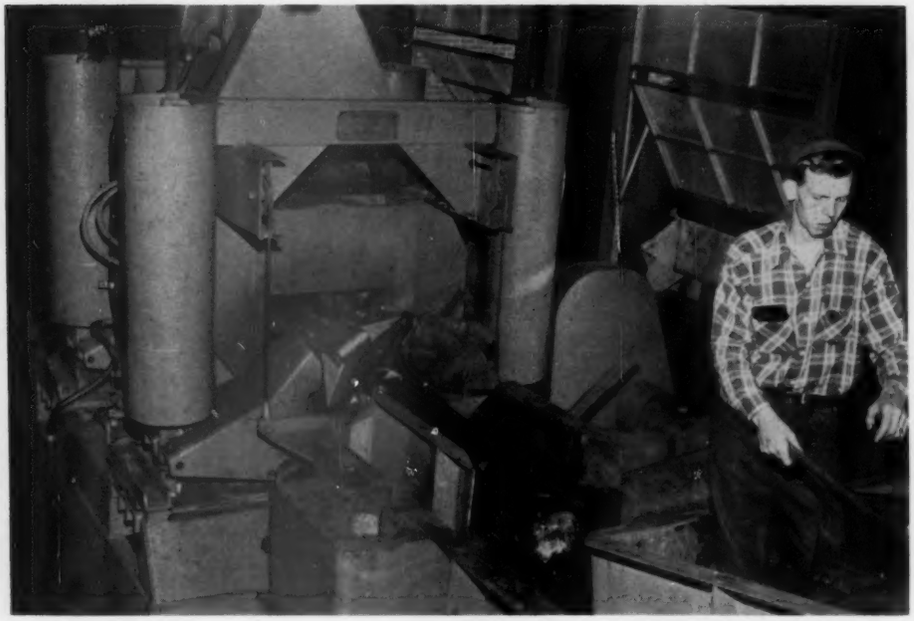


HARDWOODS from Allegheny forests are barked in this new Impco Sund barker at Hammermill Paper Co., Erie, Pa.

Pioneering New Hardwood Operation

"Pulpwood story" behind Hammermill's new process reveals how a new source of supply is developed

• The history-making development of Hammermill Paper Co.'s Neutracel pulping process (described elsewhere in this issue), is having important economic effects on Hammermill's wood producing neighbors in northern Pennsylvania and western New York.

For years, the entire pulpwood supply came from Hammermill's cutting operations in Port Arthur, Ont., Matane, Que., and New Brunswick. Now an increasingly large portion of the pulpwood comes from local production.

Bert Claridge, vice president in charge of pulpwood operations, says that this will mean an eventual expenditure of approximately $2,000,000 per year when Neutracel production is in full swing.

A steady market for local wood is already having an important effect on the farmer and woodlot owner who now looks upon pulpwood production as a steady "crop" to be grown and harvested by the application of the best scientific forestry practices. The effect of this steady income has been and is increasingly being felt on the economy of this area.

Hammermill's pulpwood procurement area will cover roughly a 90° arc swinging south and east from Erie for a distance of about 150 miles. This embraces a very large forest area within which Hammermill now owns large timber areas.

THE PROBLEM–STARTING NEW FLOW OF WOOD–"Getting pulpwood rolling to the mill was a big job," says Ray Bower, woodlands manager. "We have been quite successful, however, in setting up a program that provides a steady, year-round flow of wood, cut and delivered according to our specifications."

Near Warren, Pa. and deep in the Allegheny National Forest, a PULP & PAPER editor donned his woods-going boots and trekked to a cutting site to glimpse intimately a typical Hammermill supplier in action.

RAY F. BOWER, Woodlands Manager for Hammermill.

Lithe, athletic Don Arbuckle has been a steady Hammermill supplier for 3 years. This thirtyish youngster is an agricultural engineering grad of Penn State. He's a good mechanic and has rigged up a few pieces of equipment to make his pulpwood cutting labors easier. Mr. Arbuckle is the kind of fellow who pitches right in along with his men and during PULP & PAPER'S visit he was seen driving a

tractor, loading sawlogs atop a log truck and loading a skid of 4-ft. wood.

A CASE HISTORY—Earl Sallack, district forester for Hammermill, who deftly "jeeped" PULP & PAPER's editor along the forest roads, provided some background information on the "chance" that Mr. Arbuckle was now cutting.

This particular "chance," purchased by Mr. Arbuckle, had about 4,000 cords of pulpwood and 90,000 ft. of sawlogs. U.S. Forest Service foresters mark the trees for cutting. Mr. Arbuckle must provide his own secondary roads and is given a time limit to complete his cuttings. The roads revert to U.S. Forest Service after cutting operations are completed.

Mr. Arbuckle showed an access road, about 2 miles long, which had been bulldozed for him at a cost of about $1,000.

Logging in the Allegheny Forest area is not easy and this editor, who had recently covered some 3,000 miles visiting pulpwood operations between Jacksonville, Florida and Virginia, was frankly impressed with the difference in operating conditions.

COMPARING LOGGING WITH SOUTH—In the South, operations were on comparatively level areas, timber was of relatively small diameter and lighter in weight for easier handling. Tree lengths were yarded to a central point, several at a time, bucked with bicycle-type saws, loaded by two men with comparative ease onto pallets which were winched aboard a truck for delivery to the mill or concentration yard.

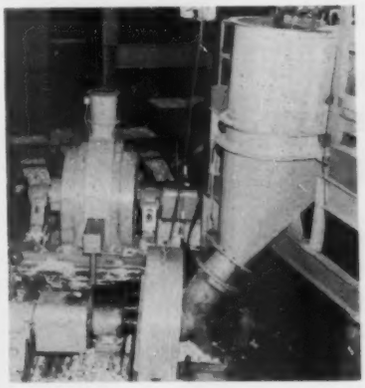
In the Allegheny National Forest, PULP & PAPER saw these comparisons: Wood was of greater density and greater weight. Each cutter did his own bucking at the stump. The 4-ft. logs were then loaded onto a tractor-drawn skid for conveyance to the main haul roads. Here the logs were loaded onto a semi-trailer truck for delivery to the mill. Weather, of course, can be another disadvantage. A light 3-in. snowfall preceded the visit and hampered operations to some extent.

Mr. Arbuckle's 5-man team consisted of 3 cutters, one tractor driver and one truck driver. Pulpwood cutter Bill Marfink was using one of the new Homelite 5-20 power saws. Nearby Ted Jefferson was using a heavy duty McCulloch chainsaw. Mr. Jefferson is nephew of Harry Jefferson, safety engineer for American Pulpwood Assn. When he saw his picture about to be taken, he called "halt" and quickly adjusted his safety hat. It would never do, he said, for Uncle

THE FLOW OF HARDWOODS to Hammermill Paper Co. starts in the Allegheny forest. Here, TED JEFFERSON, with heavy duty McCulloch chain saw, takes a hefty cut at mature hardwood.

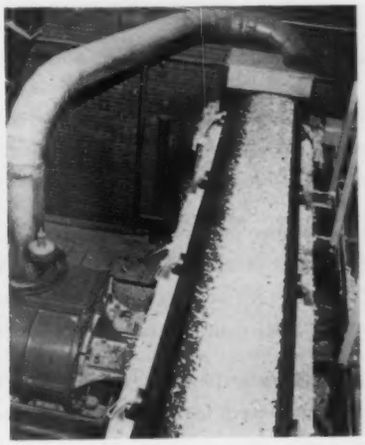
HARDWOOD RECOVERY is by rail crane into these special-designed hydraulic dump bodies on Mack Truck chassis fabricated by Hockensmith Corp.

OVERSIZED HARDWOOD LOGS are reduced in this hydraulic ram splitter of Hammermill's own design.



TWO CARTHAGE 10-knife chippers chip hardwood logs. Each is powered by a 2,500 hp Westinghouse direct drive motor. Chipper knife life is about the same on hardwoods as on softwoods, reports JOHN WILSON, Woodroom Supt.

HARDWOOD CHIPS flow along Jeffrey chip conveyors to a series of Carthage-Dillon chip screens.



CHIPS ARE ELEVATED 120-ft. from ground level to chip bin storage level by an Allington Curtis chip blowing system with a Roots-Connerville blower. Chips then flow to the digesters by gravity feed.

Fastest Cutting Speed

of any direct drive
CHAIN SAW

HOMELITE EZ

5 Horsepower
19 Pounds
New Low Cost

WIN A HOMELITE *EZ* FREE!

24 Homelite EZ chain saws being given away every month. Nothing to buy. Nothing to write. No obligation. Just ask your Homelite dealer how you can win. See him today!

Try the new Homelite *EZ* and you'll see why it gives you the fastest cutting speed of *any* direct drive chain saw . . . and why it lets you cut more wood with less effort and less fatigue.

Its full 5 horsepower zips through 8″ Oak in 5 seconds, 18″ Pine in 14 seconds . . . brings down trees up to 3 feet in diameter. All-position, all-angle carburetor gives you full power for *any* cut . . . up, down, right, left, even upside down.

Because it weighs only 19 pounds you can take it *anywhere!* You can limb and undercut faster . . . fell, buck and notch *easier!*

Try it and see! Get a free demonstration at your nearest Homelite dealer's . . . and learn how easy it is to buy on a convenient time payment plan.

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Complete Line of Chain Saws for Every Cutting Job

Manufacturers of Carryable Pumps • Generators • Blowers • Chain Saws

In Canada: Terry Machinery Co., Ltd. — Toronto, Montreal, Vancouver, Ottawa, Edmonton, Moncton.

Jeff to see his nephew's photo in a national magazine without the safety hat.

Mr. Arbuckle uses a 7.5 cord capacity semi-trailer for the 65-mi. haul to the mill.

About 60% of Hammermill's hardwood requirements arrive by truck; the balance comes by rail.

WHAT HAPPENS AT THE MILL— Wood is put into yard storage or is unloaded directly onto Jeffrey log conveyors going to the woodroom. About 10,000 cords of hardwood are kept on yard inventory.

(*For a complete description of Hammermill's softwood handling operations you'll get some good reading if you get a copy of PULP & PAPER'S Sept., 1952 issue.*)

Hardwood recovery from storage piles is by American Dieselectric rail crane using a Wellman Bucket Co. pulpwood (orange-peel type) grapple. Mack trucks with special-designed hydraulic dump bodies, frabricated by Hockensmith Corp., haul the wood to the log conveyors.

The movement of hardwood and softwood is along the same Jeffrey log conveyor; separation being made ahead of the barkers. A new Impco barker handles hardwood; while both softwood and hardwood can be barked in the Thorne barkers. An Allis-Chalmers 1250 Streambarker handles 8-ft. softwood.

Oversized hardwood logs are reduced in a hydraulic ram splitter of company design. Logs then move to a battery of 2 Carthage 10-knife chippers, powered by 2,500 hp Westinghouse direct drive motors. Chipper knife life is about the same on hardwoods as on softwoods, says John Wilson, woodroom supt.

Jeffrey chip conveyors flow the hardwood chips to a series of Carthage-Dillon chip screens. Chips are then elevated 120-ft. from ground level to chip bin storage level by an Allington Curtis chip blowing system with a Roots-Connerville blower. The chips flow to the digesters by gravity feed.

And for the rest of the story, see our main feature on the new process at the mill.

U.S.F.S. Still Wants Pulp Mill in Rocky Mt. Area

A new U.S. Forest Service study says if national forest timber in certain localities of the Intermountain forest region is to be properly utilized, pulp mills or other large wood using plants must be developed. However, several leading paper companies have turned their backs on previous USFS solicitation because of stumpage prices, costly operating restrictions, etc.

Two localities in particular were studied in 1955 by the U.S. forest and range experiment station at Ogden, Utah: Idaho Falls area in southern Idaho and the Kemmerer-Green River area of southwestern Wyoming. Despite cutting for many decades, these areas still have timber-growing capacity, the USFS says.

The station reports, "There has been much discussion of the possibility of acquiring a pulp mill or two, medium sized sawmills and hardboard mills.

"Expansion of the timber industries is likewise a must if there is to be good forest management in this area. Lack of markets for over-mature timber which has suffered recurrent attacks from insects and diseases makes it difficult, and in a few cases futile, to protect the timber."

"HOW'S IT GOING?" asks EARL SALLACK (right), District Forester for Hammermill Paper Co., of DON ARBUCKLE, (left) a steady Hammermill supplier for 3 years.

LOUIS J. FREEDMAN, Retiring Vice President, Penobscot Development Co., after 52 years in forestry, says: "To watch the growth of forestry has been a heartwarming experience."

L. J. Freedman Retires After 52 Years in Forestry

"To watch the growth of forestry has been a heartwarming experience, and I am proud to have been a part of the young and small profession in its early days and to have been connected with the industry during my life time." This is the observation, after some 52 years in forestry work, of Louis J. Freedman, retiring vice president of Penobscot Development Co., Great Works, Me. Mr. Freedman is also a past president of American Pulpwood Assn.

Boston-born (Nov. 16, 1885) Mr. Freedman attended the Boston Latin School and Harvard (b.s. 1907, graduate school, m.f. 1908). He received an honorary Dr. of Science from U. of Maine, 1953. He did freelance forestry and consulting work until 1917 and spent two years in the Army, ending with rank of major.

Mr. Freedman has been with the timberland and procurement division of Penobscot Chemical Fibre Co. since 1919.

Interviewed by PULP & PAPER, Mr. Freedman recalled his undergraduate days in the woods in Maine since 1904 and said that from his high school days he wanted to go into forestry. He spent the summers of his youth in Aroostook County, Me.

Mr. Freedman is a member of the visiting committee of the U. of Maine and Harvard (Forest) U. He will also continue as representative of the Committee of Imports, and on the board of directors of Penobscot Chemical Fibre Co. He is also president and a director of Nahmakanta Dam Co. and Great Works Dam Co.

Ralph W. Merrill, who has been with Penobscot since 1917, succeeds Mr. Freedman as manager of woodlands, and Edwin L. Giddings moves up as superintendent of woodlands department.

What's New in Rainmaking

• Weather modifications, or rainmaking as it is popularly called, has come of age, says Dr. Irving P. Krick, president, Water Resources Development Corp., Denver, Colo.

Addressing a luncheon meeting of American Pulpwood Association during its annual convention, Dr. Krick stated the nation has passed an important ridge in its attitude toward weather modification and the subject must now be considered in a broader light.

CONTROVERSY ON AUGMENTATION—Dr. Krick cited a controversy which had arisen in 1954 over augmentation of rainfall and said that a presidential committee, set up to investigate it, reported that its findings were positive and recommended that the committee be extended 2 years.

Considering the obstacle faced by cloud seeders, these results are quite important historically, he stressed.

HOW IT STARTED—Dr. Krick reviewed the history of weather modification from the time in 1946 when a General Electric research man tossed dry ice into an icebox to cool it down. His breath condensed and formed water droplets. In 1948 dry ice was not found practical and another General Electric technician came up with silver iodide.

Weather modification is a development in the sphere of atomic energy, he said, and now permits man to tap a latent energy in nature.

Hail suppression (in Switzerland) is now an accomplished fact, claimed Dr. Krick, and added that ultimately "we will be able to suppress lightning and severe storms such as tornadoes."

WHAT IT PORTENDS—Directing his attention to the pulpwood industry, the lanky "rainmaker" executive said that augmented rainfall can help the industry in two of its most aggravating problems, increased growth and fire hazard. One way to grow more is to increase precipitation, he said.

Coming down from the raineloud to give a few down-to-earth examples of what has and can be accomplished by weather modification, Dr. Krick cited the case of Quebec North Shore Paper Co., which was threatened by a fire in one of its mill towns.

Ships were standing by to evacuate the townspeople. An urgent call was made to the weather modification company to see what could be done. Weather charts were scanned to see if any rain clouds were moving toward the area. There was one, coming in from Western Canada and due to arrive in 3 days.

Equipment was flown in and when the storm arrived was in operation. Results were successful.

In Ontario a drought hit several mills using hydroelectric power. The rainmakers set up shop and between August and October, 1955, several decent storm occurrences arose and results were adequate stream flow to keep the mills in operations and build up reserves.

In Georgia and Florida, weather modifiers are working on a year-round basis and have increased annual rainfall by more than 20%.

WHAT IT COSTS—As to the economics of weather modification, Dr. Krick reported that weather modifiers simply trigger the energy release and nature does most of the work.

He mentioned that the U.S. Bureau of Reclamation had calculated costs of 38¢ per M gals. to convert sea water to fresh. Actually, it came to around $2.50 plus capital outlay, he said.

In contrast, reported Dr. Krick, after weather modifiers went into action in Dallas, Texas, results cost an estimated ½¢ per M gals.

"I believe that paper companies will now share their experience in weather modification," commented Dr. Krick, adding that the era of being considered a "sucker" is passed.

THINGS TO COME—Reaching far into the future, he predicted that with the day of man-made satellites, we will know just where to pulse the atmosphere to key the planetary currents to a predetermined flow.

Dr. Krick was asked whether weather modification could eliminate the desert areas of the world. He said no, that you can't buck nature and work with nature. Weather modification, he advised, is limited to areas of natural storm occurrences.

Convert Logs into HIGH-QUALITY CHIPS

with Carthage Log Barkers, Log Splitters, Log Chippers, Slab Chippers, Chip Screens

For Example:

CARTHAGE NORMAN CHIPPER produces smooth, uniform chips—clean cut and low in sawdust. Multiple-knife design results in steady pressure on the log—prevents chattering. Heavy-duty construction—low maintenance costs. Also Carthage Standard Chippers.

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Set your sights on an HD-6B

for more production
wide work range
low job costs

45 drawbar hp — 55 belt hp — 12,400 lb
and all these exclusive on-the-job advantages important to owners and operators:

All-steel, box-A main frame — soaks up shock loads.

One-piece steering clutch and final drive housing — line-bored for true alignment of shafts and gears.

Straddle-mounted final drives — with bearings on both sides of gears to maintain gear tooth alignment.

Heavy-duty truck frames — keep tracks in line, reduce wear . . . help get more work done at lowest possible cost.

Allis-Chalmers long-life diesel engine — with follow-through combustion that delivers power for big output with ample power reserve.

Simplified lubrication — including 1,000-hour lubrication intervals for truck wheels, idlers, and support rollers . . . provides extra working time.

Unit construction — makes service easier, faster . . . major units can be removed without disturbing adjacent assemblies.

Operator ease and comfort — with foam rubber seats . . . responsive controls . . . full visibility.

Wrap-around radiator guard — serves as dozer lift frame . . . reduces weight and cost, produces superior balance for tractor-dozer.

Engine-mounted bulldozers — direct lift . . . positive down pressure . . . hydraulic straight blade or angle blade.

Plus heavy-duty, tapered roller bearing truck wheels, heavy-duty truck wheel guards, 24-volt direct electric starting, crankcase guard, bumper, and lights at no extra cost.

Check the complete service program offered by your Allis-Chalmers Construction Machinery dealer. His factory-trained servicemen, factory-approved facilities, and stocks of True Original Parts keep your equipment operating properly . . . add up to the kind of service that saves you money.

See your Allis-Chalmers Construction Machinery dealer. He will be glad to show you an HD-6B at work.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

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ATTACHMENTS

- ★ Shovel
- ★ Pullshovel
- ★ Crane, with centre sections and jib boom available.

AUXILIARY EQUIPMENT

- ★ Dragline
- ★ Clamshell
- ★ Pulpwood or other grapple
- ★ Piledriver as required
- ★ Magnet attachment

FACTORY SERVICE —SPARE PARTS IN STOCK

Fully qualified, factory-trained personnel are available for service. Spares are always close at hand.

DOMINION ENGINEERING
COMPANY LIMITED
· POWER CRANE AND SHOVEL DIVISION ·

HALIFAX MONCTON FREDERICTON QUEBEC MONTREAL TORONTO WINNIPEG REGINA CALGARY VANCOUVER

Microwave Speeds Forest Messages

Hodges Industries installs first microwave point-to-point trunk communication system in forest products industry

● Installation of the first microwave point-to-point trunk communication system in the forest products industry has been effected by A. J. Hodges Industries, Inc., Shreveport, La. Equipment was furnished by Collins Radio Company, Cedar Rapids, Iowa, through its Dallas, Texas, branch factory.

This new facility provides management the capability, reliability and privacy of telephone communication without going to an outside agency or sustaining maintenance costs of a private line.

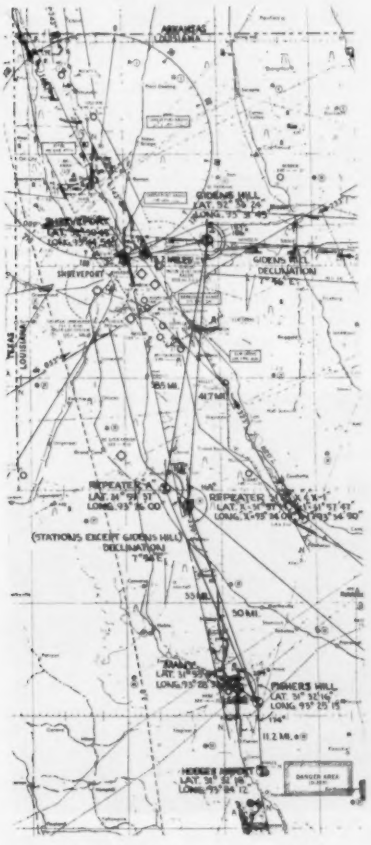
Equipment consists of 6 microwave installations and 2 VHF (very high frequency) installations. These are placed in 3 terminals, and 3 relay stations of which 2 are used to control the VHF base stations.

Shreveport headquarters has a microwave station transmitting from there 13.2 miles east to a spur and drop relay (and VHF repeater) station, then south 41.7 miles to a through relay, thence 30 miles south and east to a spur and relay station (with VHF repeater) at Fisher's Hill, east of Many, La. From here one voice channel is bounced 3.6 miles to company office at Many, and another channel 11.2 miles to the company's experimental station and airstrip. A third voice channel connects the Many office through Fisher's Hill to the southern terminal. This experimental area and terminal is 3 mi. NE of Hornbeck, La.

Band assignment is 6575 megacycles. Original channels are 3, but the equipment can handle up to 24. These voice channels do not conflict with one another and may be used simultaneously.

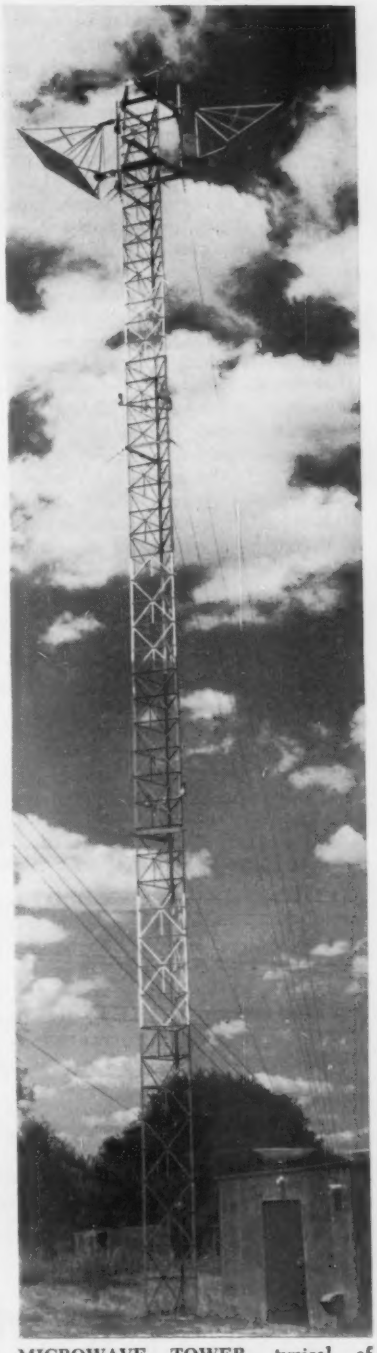
VHF (2 way radio) equipment includes 25 units placed in company vehicles used in fire fighting, maintenance work, supervisory personnel, and the Navion plane used in season for fire spotting.

Two-way radio has been used by Hodges for its inter-company and mobile unit intercommunication. Its introduction of the microwave system for office-to-office private "line" is designed to eliminate disruptive factors experienced with the longer wave system, and in combination with VHF for mobile units to effect improvement in that field.



MAP of Hodges microwave system.

HOW IT WORKS—Microwaves were first generated in 1888 as the original radio waves but the high power for longer lengths proved more easily produced and could be bounced off electrically charged layers of air, hence more easily used in transmission. Dur- World War II radar development using microwaves as pulsations advanced their use with continued re-



MICROWAVE TOWER, typical of Hodges installation. Tower, part of Collins Radio test system in Texas, is 100 ft. high.

search. The Klystron (a special high powered tube) and the waveguide are products of this research.

Waveguides are metal tubes in which microwaves travel within the transmitting and receiving equipment, commonly called "plumbing." Wires used in ordinary radio purposes permit microwaves to leak out. All radio waves are about ¼ mi. long compared with a range of from 2 ft. to less than ½ in. for microwaves which, accordingly, are more easily controlled.

Confined to a narrow beam, much as a searchlight, microwaves are sent up vertically from a "dish" atop the station to a reflector at a tower top high enough to clear obstacles. It is "bounced" in a selected direction to a receiving reflector, cast down to a dish atop the terminal or a relay station that repeats the action. Nominal sending distances range from 20 to 40 mi., depending upon terrain and/or obstructions. Towers range from 75 to 300 ft. high. Use of the relay permits carrying the system to any desired distance. Microwave systems are virtually free from natural or man-made interference.

A. J. Hodges Industries, Inc., of which A. J. Hodges is president, has about 70,000 acres of forest land certified as "tree farm," of which 48,000 acres are in Sabine Parish (Many). The bulk of the remainder is in 6 parishes, with small holdings in 2 others. Taken over from a "cut out" lumber company, it was not in good productive condition. Chas. H. Jeter, company vice president, directs this work.

STUDY TREES AND WILDLIFE— Establishment of the experimental area by the company was for the development of better pine trees for Southern pine consumers, and to study experimentally fish and game wildlife. It consists of 4500 acres enclosed in an 8-ft. woven wire fence. The northern edge of the longleaf pine belt runs through this area.

Here fish and game management is studied in cooperation with Louisiana State University's Fish and Game Research Dept., directed by Dr. Bryant A. Bateman.

One 225 acre man-made lake has been stocked with large-mouth black bass and bluegill bream. Four small ponds of 1 to 5 acres in size are being used for research for various other species of fish.

Deer, elk and turkeys have been stocked for propagation. The deer herd is comprised of native white-tail, mule deer, Japanese fan-tail sika and three varieties of European Fallow deer. These deer, one bull elk and three cow elk were all imported from a game farm in Wisconsin. Pen-reared turkeys were imported from Northeast Louisiana for stocking purposes.

5-POINT RESEARCH PROGRAM— Company forest research is along a five-point program. Though not listed according to priority, these are being studied:

(1) Working with other interested parties on shortening the "grass stage" period of longleaf pine.

(2) Producing dense wood trees for the pulpwood industry. Select trees having dense wood (a large percentage of summer wood as compared to wood produced by spring growth) and propagating this through subsequent generations.

(3) Seeking a "superior tree" that will combine rapid growth, high quality lumber, disease resistance and drought hardiness. This problem is attacked by hybridizations between species and individual trees, each having one or more of the desirable characteristics. Then field testing the progeny resulting from this hybridization.

(4) Establishing an arboretum. The company has been collecting all of the 91 species of pine in the world that will grow in Northwest Louisiana. These are planted in a concentrated area for observation of growth and quality characteristics and hybridization purposes.

(5) Vegetative Propagation. Getting root formation on pine trees of merchantable size classes has long been known as a definite need, yet in some cases, pine is rather stubborn about producing roots. A large number of people have attacked this problem from a great many angles with little success, particularly with loblolly pine.

The company is working on the rooting of cuttings in greenhouse beds. It is understood that no success has ever been attained in rooting loblolly pine cuttings.

For this purpose there has been constructed a specially designed greenhouse in which the air temperature, relative humidity and soil temperature can be rigidly controlled. These are kept at 62-65° F., 85-95% and 80° F. respectively. These conditions are maintained constantly. Under these ideal atmospheric and soil conditions, 6 different types of rooting mediums are combined with various chemical and rooting hormone treatments, giving 21 different combinations of treatment.

After 12 weeks in the greenhouse beds, some degree of success had been noted on cuttings from 1 and 3 year old seedlings. Although no rooting has been seen on any of the cuttings from mature trees, workers are very encouraged about the fact that they have rooted loblolly pine. Perhaps the mature cuttings will require a more refined technique of the method than now used. This will be studied next.

Forest research work is pooled in cooperation with: Texas Forest Service, Forest Genetics Laboratory, Dr. Bruce Zobel; Southern Forest Experiment Station, Philip C. Wakeley; Louisiana State University, School of Forestry, Professor A. B. Crow. The company exchanges information and ideas with any other person, organization or institution having a mutual interest in the Southern Pine Tree Improvement Program.

TREE RESEARCH. This is rooting test area in A. J. Hodges Industries greenhouse near Many, La. Much work has been done on rooting cuttings of loblolly pine.

USFS Sifts Industry Views Prior to Final Draft of TRR

Now that the 5-month review period for industry to make its comments on the Timber Resource Review has ended, what is the present status of TRR? Interviewed in the Nation's Capitol, a U. S. Forest Service spokesman told PULP & PAPER that at present the 200-odd comments from conservationists, industry associations, consulting foresters and company foresters are being sifted and reviewed.

The next step was a meeting scheduled in late April of the Advisory Group, at which about 15 members of organizations representing conservation interests and industry were invited to send a delegate. This group, explained the department spokesman, is a departure from previous procedure and was initiated early in 1952 by the Forest Service to act as a sounding board to apprise it of views from these various interested organizations, before undertaking the TRR survey.

One thing the spokesman emphasized is that the Forest Service is not obligated to follow the advice of this group—it is just what the name implies—an advisory group.

But using the comments of the Advisory Group coupled with the 200 reports from various sources, the Forest Service will now embark on a final revision of TRR.

"Isn't this a departure from previous procedure?" P&P asked. In essence, it is, was the reply, and in fact, the Forest Service believes that it has bent way over backwards to be cooperative. Not only that, but this is also the first time that a preliminary draft has been available for comments on the part of the industry.

The Forest Service also believes that it has been misunderstood in criticisms of projections to 2,000 A.D. The upper level predictions are based on present levels of demand and show where the U. S. is going and in what sectors it is going to have a considerable amount of activity, P&P was told.

The herculean task of a final revision will keep the U. S. Forest Service knee-deep, literally, until late-1956, when the department hopes to have the final TRR complete.

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Make Sumner Your Headquarters For Woodroom Machinery

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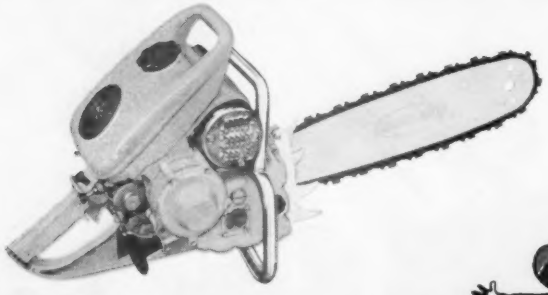
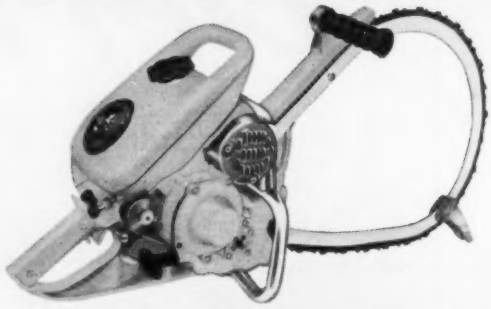
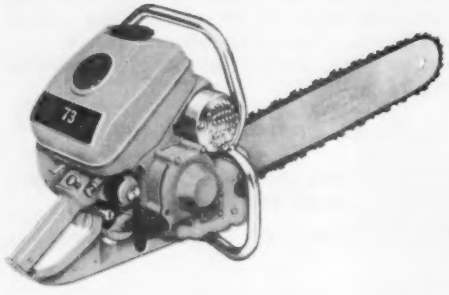


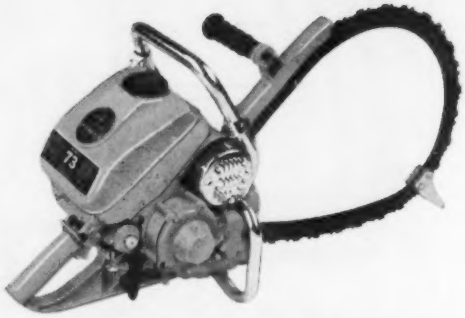
MODEL 47, a dependable and durable saw for pulp or medium-sized timber. Blades up to 42 inches.



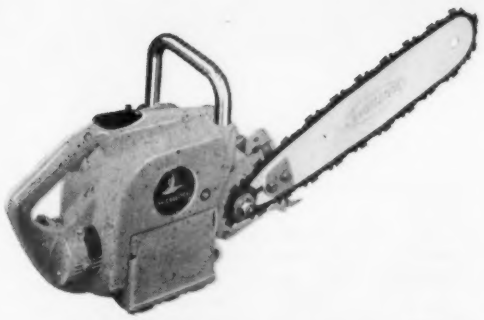
MODEL 47 PLUNGE BOW, 15-inch capacity. These saws cut with the tip, save bending.



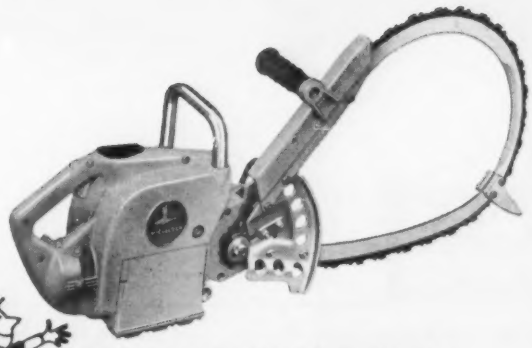
MODEL 73, fastest cutting of all one-man saws. For any size of timber. Blades up to 42 inches.



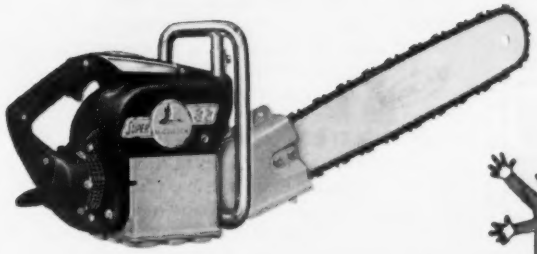
MODEL 73 PLUNGE BOW, 15-inch, is easy to use and sensationally fast.



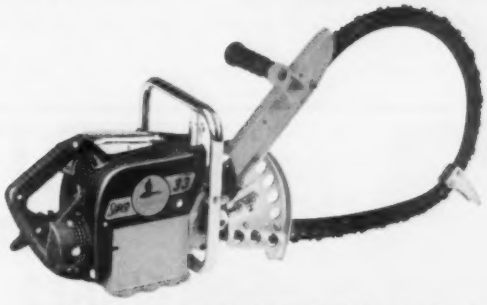
MODEL 33B, lightest in weight (20 lb complete), lowest in price. Blades up to 30 inches.



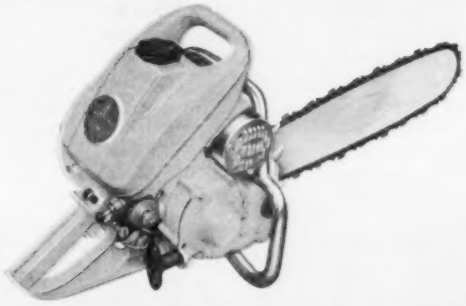
MODEL 33B PLUNGE BOW, 15-inch, designed for easiest pulpwood cutting.



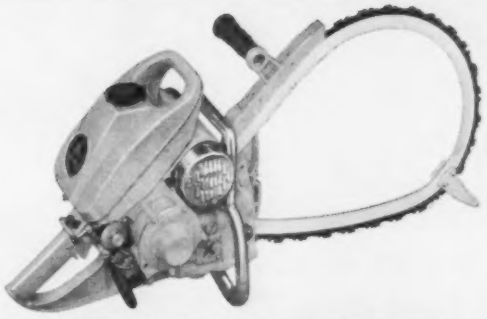
SUPER 33, fastest cutting of all saws in its weight and price class. Blades up to 30 inches.



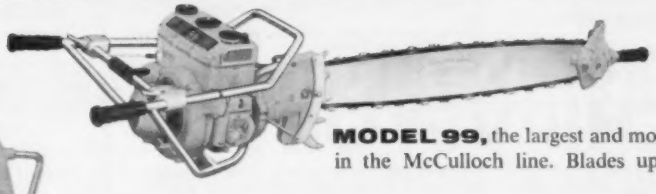
SUPER 33 PLUNGE BOW, a 15-inch, high-speed, light-weight pulp and cordwood saw.



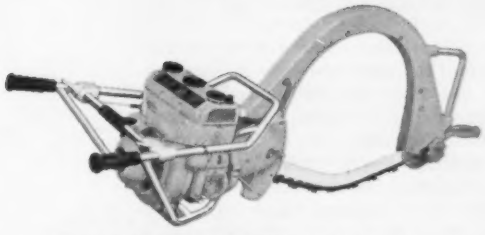
MODEL 4-30A, a rugged saw for production cutting in any size timber. Blades up to 42 inches.



MODEL 4-30A PLUNGE BOW, 15-inch, for fast felling and bucking in any type of wood.



MODEL 99, the largest and most powerful saw in the McCulloch line. Blades up to 60 inches.



MODEL 99 BOW, 20-inch, is rugged and fast, with largest capacity.

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World's largest chain saw builder

McCulloch Motors Corporation

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Pulpwood Personals

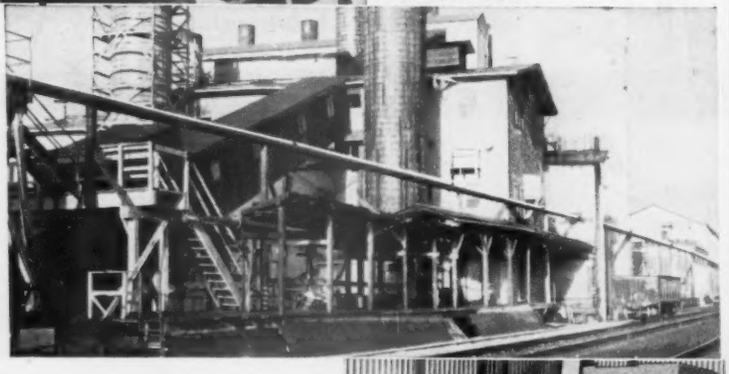
PAUL M. DUNN, director of technical forestry, St. Regis, New York headquarters, was toastmaster at the Fernhoppers' Banquet, 50th anniversary of Oregon State College School of Forestry. He was dean there from 1942 to 1955 . . . **DONALD B. MALMBERG,** '47 forestry management graduate of Oregon State College with a master's in forestry from University of Washington and a doctorate candidate, has joined Port Blakely Mill Co., Seattle, as research forester in second growth management. Port Blakely is a supplier for pulp mills and sawmills . . . West Virginia Pulp & Paper's timberlands provide more than just good pulpwood, according to wood procurement chief **CAM NEIDERHOF.** They are also an excellent source of community relations—every year nearly 3,000 hunters enjoy deer and turkey shoots in West Virginia's forests. . . .

Two International Paper foresters are serving on state tree farm committees: **GEORGE DAY,** forester at DeRidder, La., is new chairman of Louisiana Tree Farm Committee and **JOHN TYLER** of Canton, Miss., office, is serving on Mississippi Tree Farm group . . . **RUFUS H. PAGE,** consulting forester, has been jointly employed by Georgia Forestry Commission and Southeastern Forest Experiment Station to conduct a cooperative program of forest utilization research in Georgia . . . **BEN DAVIS, JR.** has been appointed asst. exec. secy. of Mississippi Forestry Assn., at Jackson . . . Southern Pulpwood Conservation Assoc. grows bigger every day. Latest member is the Buckeye Cellulose Corp. at Foley, Fla.

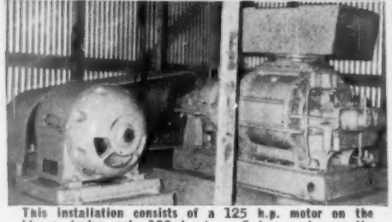
DR. DAVID C. LEA, former tech. dir. of Potlatch Forests, Inc., Lewiston, Idaho, and a ph.d. from Institute of Paper Chemistry, has been appointed research and development manager of Forest Products Div. of Olin Mathieson Chemical Corp. at West Monroe, La. . . . **JOHN M. McELRATH** of Macon, Ga., has been appointed to a 7-year term as chairman of Georgia Forestry Commission, succeeding **K. S. VERN** of Waycross . . . **VERNON C. ADKINS** has joined the forestry staff of Southern Advance Bag & Paper Div. of Robert Gair Co., Inc., as advisor to assist small landowners in proper management of forest lands. "Buck" Adkins is a grad of Louisiana State U. School of Forestry.

GEORGE A. ANDERSON, asst. forest lands mgr. of Brunswick Pulp & Paper Co., is secy-treas. of Southeastern Section of Society of American Foresters.

CHIPS
STAND FOR
BIGGER STAKES



at
Publishers' Paper Co.
Oregon City
with their
Installation of



This installation consists of a 125 h.p. motor on the blower (using only 100 h.p.), a 5 h.p. motor on the CONVEYAIR ROTARY FEEDER (not shown), and 12" pipe.
Varying capacities, pipe sizes, etc. are specified suitably for individual requirements.

CONVEYAIR
★ CHIPVEYOR ★

which, at surprisingly low initial cost; extremely low operating cost; and negligible maintenance cost, makes possible the reception and storage of a continuous supply of WASTE WOOD CHIPS.
Completely automatic, this CHIPVEYOR installation handles an average of 30 units per hour delivered from other mills; propelling them a distance of 1450 feet, (of which 120 feet is vertical), and discharges them into the storage silo.
We will gladly send you full information and references to highly satisfied operators—phone or write.

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Ed Drott Dies at 69

E. A. Drott, 69, founder and chairman of Drott Tractor Co., Inc., and president of Drott Mfg. Corp., died suddenly on Apr. 5 at Raleigh, N. C. He was delivering a talk before a group of International Harvester Co. distributors when he collapsed.

He was a pioneer in the field of expanding the usefulness of crawler tractors, beginning his development work shortly after he formed Drott Tractor Co., at Butternut, Wis., in 1916. He was the first to put a tractor to use in logging operations when he used a Holt machine to tow sled trains from the deep woods to railheads.

Much of Mr. Drott's early life was spent in the logging camps of northern Wisconsin. As a result of this experience, his life's ambition was to develop equipment to eliminate much of the hard physical "bull work" associated with logging and pulpwood. In recent years he was active primarily in product development at his home and factory proving grounds near Tomahawk, Wis.

PULPWOOD HANDLING RATE INCREASED!

In the woods and at the mill, pulpwood handling rates shoot up when tough, efficient American Cranes lend a hand. They handle more because, from every angle, they're designed for top production. American Truck and Self Propelled Cranes are really maneuverable—offer ground gripping traction that gets them in and out of the tough spots quickly, without help! American design makes even the best crane operator more efficient, too! Anti-friction bearings in the brake linkage system cut operator effort right in half. This means up to 50% less push on the foot pedals—faster release with better control when lowering the load!

You'll find, just as production-wise pulpwood operators have, that American crawler and rubber mounted cranes stay on the job—keep up their profitable pace longer and with lower maintenance cost. They're built to take it structurally and mechanically!

Your pulpwood handling problem can be solved best with an American. See the distributor that sells and services crawler and rubber mounted American Cranes in capacities from ½-yard on up!

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How can we stop corrosion?

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"We Stopped Corrosion at our Plant!"

"Corrosion was *rampant* inside and out before Truscon diagnosed our troubles and prescribed TRUSCON CHEMFAST, corrosion and chemical resistant coating with Devran (epoxy resin)."

● If you have *any* corrosion at your plant, stop it *now* before replacement costs eat gaping holes in your profits! Send coupon above—take advantage of Truscon experience and know-how.

Chemfast is a heavy-duty coating for protecting indoor and outdoor surfaces of wood, metal and masonry against moisture, acids and alkalis. It owes its toughness to Devran (epoxy resin).

IT'S ALIVE—IT'S DEVRAN!

TRUSCON Laboratories
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Murdock Sees Bamboo As Paper Source in Tropics

Harold Murdock, former research director, Champion Paper & Fibre Co., and General MacArthur's adviser in restoring the Japanese paper industry after the war (which actually meant Mr. Murdock directed its restoration), was visited by P&P recently at his home, 516 Hascal Road N.W., Atlanta, Ga. While he is retired, he is doing some personal consulting work.

His wife is the former Irma Norton of Buffalo, N. Y., and they were married Aug. 6, 1954 in Atlanta. As a result of his travels to Burma and the Near East, Mr. Murdock is an enthusiast for use of bamboo as a papermaking fiber in countries between the Tropic of Cancer and the Tropic of Capricorn, where suitable forest species are not plentiful.

Paper-Lined Phone Pole Is Sensation of Power World

One of the sensations of the big annual Power Conference in Chicago, with delegates from U. S., Canada and abroad, was news of a new paper-lined fiberglass telephone pole developed by Garwood Industries of Wayne, Ind.

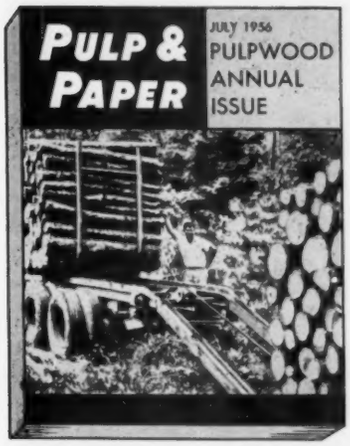
And so—another new paper use is born. The new pole is many times lighter than poles now made of southern yellow pine, a favorite pole raw material, so it will also save those pines for paper! Instead of snapping off when a highpowered car rams into it, the pole snaps right back.

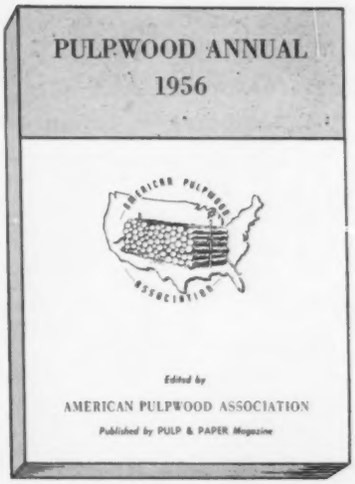
Salmonson in New Offices; Girard is Plant Manager

WALTER A. SALMONSON (left), heading Walter A. Salmonson Co., representing Draper felts, Cheney-Bigelow, DeZurik Shower Co., Simons-Worden-White and Chas. Koegel's Sons on the Pacific Coast, has opened new offices at 1224 So. Morrison St., Portland 5, Ore. (Phone Capital 7-0886). His associate, DON TOURANGEAU, also will be located there and continues to handle the DeZurik business.

WARREN A. GIRARD (right), is Plant Mgr. of one of the unusual mills in America, the recently completed Valentine Pulp & Paper Co. at Lockport, La., using bagasse to make high grade kraft paper, all now being sold in Chicago area. It uses 40,000 tons of bagasse per year. ED POWELL is Executive Vice Pres.

GET THE MOST FOR YOUR MONEY IN THE PULPWOOD FIELD ADVERTISING





Use Regular Pulpwood Section of All Monthly Issues . . . Schedule July Insertion to Run Also in 1956 Pulpwood Annual

PULPWOOD SECTION

Almost 10 years ago, PULP & PAPER established the Pulpwood Section as a regular feature of its monthly issues. Recognition of the integration of interest in pulpwood production with the manufacture of pulp and paper has won advertiser acceptance, with the result that the most important suppliers of mechanized equipment and services for this field are now carrying regular space in this section.

PULPWOOD ANNUAL

A consequence of this pioneering move was an invitation from the American Pulpwood Association to PULP & PAPER to initiate the publication of a Pulpwood Annual which would be edited by APA. In 1956 the 4th such Annual will be published, incorporating the latest and most complete information on pulpwood production and mechanization. It will be printed first as part of the regular July issue, and then reprinted with its advertising for separate distribution by APA.

PULPWOOD SECTION CIRCULATION

Subscribers to PULP & PAPER include important management men who direct the policies of companies owning more than 30 million acres of U. S. forest land. Woodlands managers, yard superintendents and foresters of these companies are PULP & PAPER subscribers, as are most of the larger pulpwood producers in the country.

PULPWOOD ANNUAL CIRCULATION

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PICTURE NEWS of the INDUSTRY

Take on New Duties

JOHN W. McNICHOL, Plant Mgr. of Scott Paper Co.'s mill in Chester, Pa., has taken on additional executive responsibilities that call for him to spend a portion of his time in Mobile, Ala.

Continuing as Chester Mgr., he also is Exec. Asst. to Vice Pres. at Scott's Mobile plant, Dennis E. Cousins, in connection with a $20 million construction program. Mr. McNichol's duties are to counsel with management at Mobile and act as liaison with Scott headquarters. Mobile will become a central distribution point for Scott trademarked brands throughout the South.

FLOYD L. COONS (right) is new mid-Atlantic sales rep for Appleton Woolen Mills. For the past year and a half, he was a member of the sales department of Eastwood-Nealley Corp., and from 1941 to 1954, was associated with the St. Croix Paper Co., Woodland, Me. With his wife and three children he lives in Bloomfield, N. J.

In New Industry Posts

FRANK C. HAWKS, Jr. (left), has been named Asst. Res. Mgr., Shelton, Wash., Division, Rayonier Inc., it has been announced by RUSSELL F. ERICKSON, Vice Pres. i/c Engineering and Mfg. A native of Tacoma, Wash., Mr. Hawks joined Rayonier at Shelton in 1939 as a Shift Chemist upon graduation from U. of Washington.

FREDERICK F. MEIWALD (right), former Tech. Rep. for St. Regis Paper Co.'s Central Technical Dept. has joined Pulp & Paper Mill Project Div., of Parsons & Whittemore Inc. He worked in the Austrian paper industry for 7 years, with M. Salzer's Soehne in Vienna, where he first became acquainted with KARL F. LANDEGGER, President.

Davis Poses With His Executive Staff

Here is one of rare times that anyone has had a picture of WAYNE G. DAVIS, Vice Pres. in charge of Sales, for Albany Felt Co. Here he is with JAMES E. SMITH, new Sales Mgr. of Paper Machine Felt Div., RAY P. DUSTRUDE, Field Sales Mgr., and MARCUS T. REYNOLDS, Asst. Sales Mgr. Left to right: MR. REYNOLDS, MR. SMITH, MR. DAVIS and MR. DUSTRUDE.

In his new position, Mr. Smith will continue to report directly to Mr. Davis. Mr. Smith joined Albany Felt in 1945, previously was with Bird & Son, Inc., for 8 years. A graduate of Boston U., he is a Lt. Commander in U.S. Naval Reserve. Ray Dustrude has been with Albany since 1945. He attended St. Olaf College and U. of Minnesota. Mark Reynolds joined Albany in 1950, after graduating from St. Paul's School and Williams College.

There It Is—In PULP & PAPER!

JAMES GINTER (left), Midwest District Mgr., Mt. Hope Machinery Co., with offices at 1737 Howard St., Chicago 26, Ill., and WILLIAM B. GALLAHUE (right), Sales Mgr. for Mt. Hope, based in Taunton, Mass., are admiring the company's ad in a recent issue of PULP & PAPER. Mr. Gallahue went west to Kalamazoo, Mich., to make a talk before the Michigan Superintendents about Mt. Hope's felt preservers. The talk was coupled with a demonstration.

In New Swenson-Whiting Posts

WILLIAM G. DEBERT (left) is new Mgr. of (Whiting) Swenson Evaporator Corp's Pulp and Paper Div. A graduate of Rose Polytechnic Inst., he started with Swenson in 1946. He succeeded RALPH BERGSTROM, who now is Mgr. for all Swenson activities.

H. B. CALDWELL (right) has been appointed Mgr. of New York district office of Whiting, in charge of sales of Whiting cranes and Swenson processing equipment, etc., in eastern New York, northern New Jersey, and all New England.

Receives Gold Pass For Kimberly Mill

A. C. McINTYRE (left), Pulp Mill Supt. Kimberly Clark Corp. Kimberly, Wis., Mill, looks on as PETER SMITS (center), receives a Gold Pass to the mill from HARRY W. PIERCE (right), who has been Manager at the ground-wood - sulfite - book paper mill since last fall; previously was Director and Chief Planner of Service Operations at Neenah, Wis. Mr. Smits was honored at a luncheon after 36 years of service in the Kimberly sulfite mill.

Speed! Economy! High Clearance!

—that's the way owners sum up their preference for the OC-3!

It's the ideal combination of all three that's enabling Oliver OC-3 owners to pep up pulpwood work and put more profits in the bank!

The OC-3 has the power and speed to bring in more pulpwood in less time—with owners averaging an easy 16 cords per day!

As for economy, the high-torque Oliver OC-3 engine is built specifically for tractor work. It's right at home in the woods doing the job it was designed to do. Working in the soft conditions such as shown here, owners report using only eight gallons for a full day's work. Multiply fuel savings like this over the months and years and you have substantial in-the-pocket profits!

The compact, handy-size OC-3 gives you real "digging-in" traction plus Oliver's *extra* high clearance that takes you over stumps, rocks, swampy areas—for straighter-line hauls, more trips every day. Add the OC-3's modern differential steering which keeps power on both tracks, even on turns, and you have just a few of the many reasons why you can *do* more and *profit* more with the Oliver OC-3. Use it for logging, land clearing, loading, or fire-line plowing. The OC-3 works with rear winch, logging tongs, tree digger, dozer, plow and other matched equipment.

See your Oliver distributor; inspect the OC-3 and see for yourself *all* the reasons for its popularity. Or write for complete literature.

High-powered brother to the OC-3 is the all-new Oliver OC-6! With extra drawbar pull and ground-gripping traction, it'll deliver production equal to larger, more costlier machines. Get the facts on this Oliver model, too!

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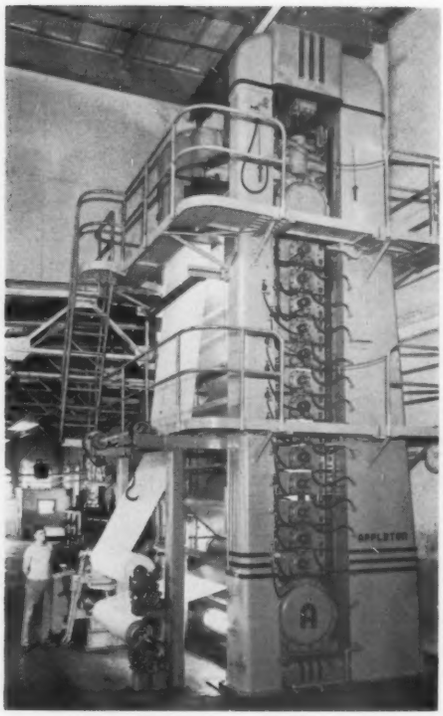


IT'S 28 FT. HIGH—OPERATES WITH 16 ROLLS. Nicolet Paper Corp.'s new Appleton supercalender is designed to take full width of No. 2 paper machine product.

New Glassine Supercalender Speed Range to 1000 FPM

Nicolet Paper Corp., glassine paper mill at West DePere, Wis., has put into operation a new glassine supercalender, designed and built by Appleton Machine Co. It may be operated either as a 16 roll or a 15 roll super-calender. Faces of rolls are 84 in., this width being chosen so the entire width of paper from No. 2 paper machine can be supercalendered at one time. Nicolet's two machines are 90 and 120 in. (74 and 100 in. trim).

Overall height of the supercalender is 28 ft. Total weight is about 100 tons. The foundation goes down about 26 ft. to bed rock.

Top roll has a diameter of 30 in., and weighs approximately 15 tons including its bearings. Bottom roll is 36 in. in diameter, and weighs about 19 tons including bearings. The paper filled rolls were completely manufactured and filled in the Nicolet's own calender roll department.

All rolls are equipped with either Torrington or SKF spherical roller bearings.

Both the unwind and the rewind shafts are Appleton Expandable Shafts. Tension on the unwind shaft is governed by a Monkley Friction.

Steam pressure on intermediate steam rolls is regulated by a Swartout control. Downward pressure applied at top of the supercalender, creating desired nip pressures, is by oil pressure controlled by a Denison hydraulic system. Westinghouse drive consists of an ac to dc motor generator set and a dc motor driving the bottom roll through a gear reducer. The ac motor is 300 hp, while the dc motor is 250 hp.

Threading speed is about 50 fpm. Operating speed can be varied from 200 to 1000 fpm. The supercalender is designed to have a maximum nip pressure of 2500 lbs. per linear inch at 1000 fpm, or 4000 lbs. per linear inch at 500 fpm.

Speed, horse power, and pressure are all constantly recorded on 24-hour charts.

Roland N. Ewens is president and treasurer of Nicolet. General mgr. is Henry J. Fowler. Herbert B. Wenberg is assistant general mgr., and Ralph F. Gilson, chief engineer.

Moves to Seattle, Sets Up New Facilities

Harold Hilton, former president and part owner of H K Equipment Co., Portland, Ore., has established a manufacturing and selling organization in Seattle (16620-24th Ave. So.) called Hilton Products. Major products will be stock valves made from stainless steel and alloys and alloy fabricated pipe, tanks, fittings, headers, etc. Design and assembly work will be carried on.

Mr. Hilton has engaged James Nicholson in sales. He has a background in pulp and paper.

Steve Thurlow Hangs Out Shingle as Coast Representative

Stephen Thurlow, who has had many years of experience in selling to pulp and paper mills, has set up business as factory engineering and sales representative for Moore & White Co., Poirier Control Co., U.S. Movidyn Corp., and several other lines. His headquarters are at 2405 11th Ave. S.W., Seattle 4, Wash. (Phone Elliott 5743.)

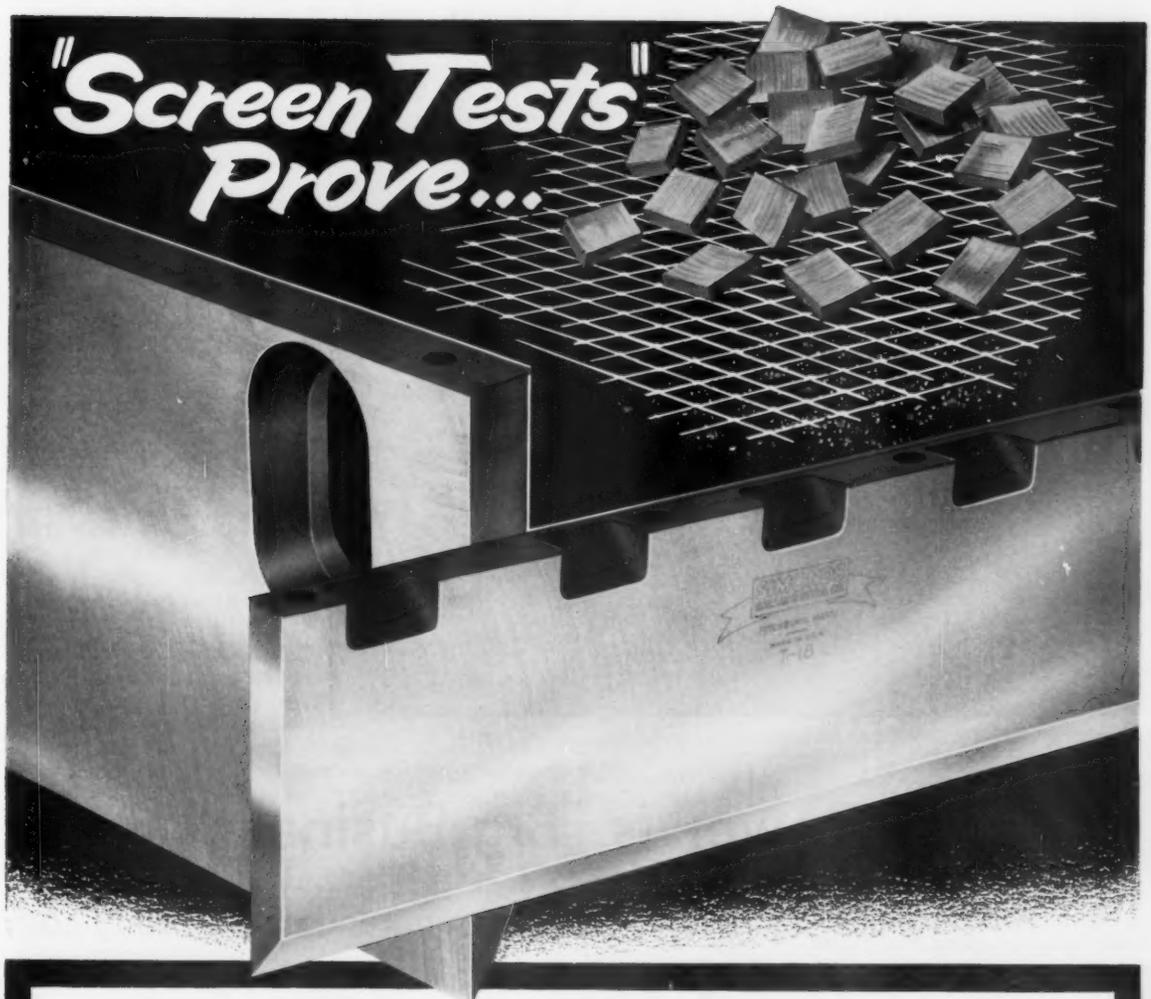
He is son of the late Harry Thurlow, a former widely known sales representative in Pacific Coast forest industries. A brother of Stephen's, Harry Jr., is assistant to the engineering and development vice president of Rayonier Inc. in New York.

Steve Thurlow's territory will be all Pacific Coast states and British Columbia. Some time ago he became Coast representative for Moore & White, Philadelphia, makers of paper making machines, finishing equipment and a new device to take paper samples on the paper machine.

In the paper, pulp, hardboard and converting fields, he represents Poirier Control Co., Waterville, Me., makers of flat box vacuum controls and consistency regulators; Standard Stamping & Perforating Co., Chicago, suppliers of stainless and mild steel and non-ferrous perforated screens; and United States Movidyn Corp., Chicago, compounders of Slimodyn and Microdyn for slime control. In the particle board field, Mr. Thurlow is introducing a new wood shaving machine built by Guillet, Auxerre, France.

In the Pacific northwest, his firm represents Ajax Flexible Coupling Co., manufacturers of rubber-brushed and dihedral gear couplings and vibrating conveyors, and Hertner Electric Co., designers and builders of ac-dc generators and automatic charging equipment.

STEPHEN (STEVE) THURLOW now represents Moore & White, Poirier controls, U.S. Movidyn slimicides, Standard perforated screens, Ajax Flexible couplings and other lines. He headquarters in Seattle, in new offices at 2405 11th Ave. S.W.



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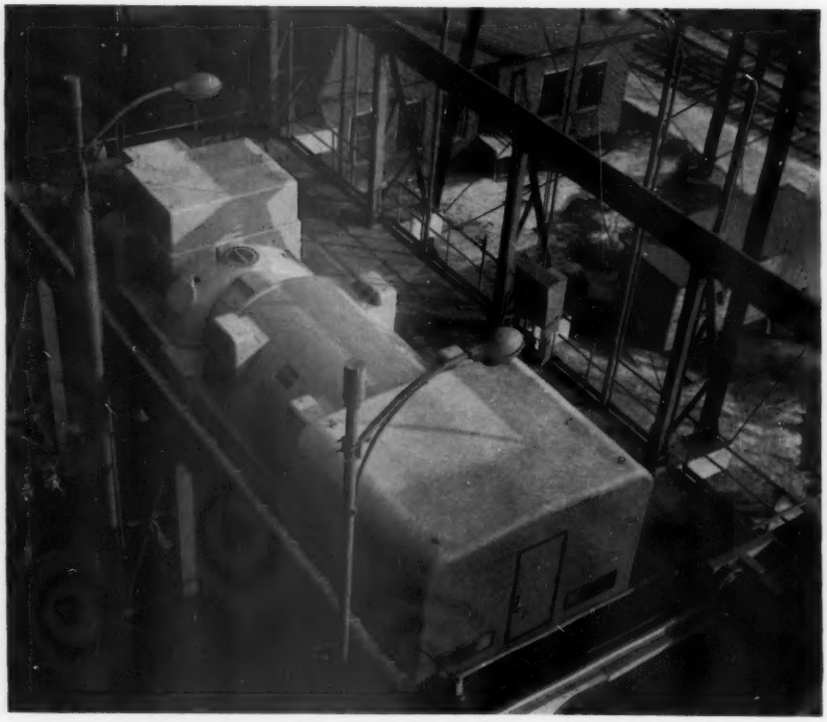

FIGURE 1 — OUTDOOR INSTALLATION of 15,000 kw automatic extraction turbine generator.

In South, Power is "Big Business"

Planning increases profit margin, reduces operating cost; see nuclear fuel in half of new installations by 1975.

By George E. Shaad and W. B. Wilson,

Industrial Engineering Dept., General Electric Co.

● Power generation is a major business in the paper industry and nowhere is it better illustrated than in the Southern pulp and paper industry. By 1960 the Southern pulp and paper industry in its expected annual production of 12,000,000 tons of pulp and paper will use nearly 8,000,000,000 kw hours of electric energy, more than six times the energy required for residential use in the combined cities of Jacksonville, Birmingham, Atlanta, New Orleans, and Houston at the present time.

Power generation in the paper mill is big business and at normal purchased power costs would considerably exceed 5% of total mill production costs.

The operation of this multi-million dollar power generation business is split up into a multitude of segments, some large, some small, some well operated and some uneconomical. Tremendous expansions have taken place in the Southern pulp and paper industry in an extremely short period of time. As a result, power generation has sometimes been a compromise, with immediate production demands taking precedence over power generation and distribution.

Boiler pressures, kw capacities, distribution voltages, switchgear adequacy, etc., run the extreme gamut of very good to very poor, depending upon the various plant capacities and conditions of growth. Existing boiler pressures and temperatures, for example, range from 160 psig saturated to 1250 psig 950°, generator sizes from 1500 to 20,000 kw, extraction pressures from less than 50 to more than 400 lbs. and generated voltages from 480 to 13,800 volts. Some are new, some are old, some are obsolete, and the operating efficiencies and costs vary accordingly. The average throughout the industry is remarkably good and is being steadily improved in nearly all mills.

PLANNING INCREASES PROFITS —While power costs are only a small portion of mill operating costs, they do represent one of the controllable factors where engineering and farsighted planning can contribute to increased profit margins. In general, this type of thinking is the decisive influence in the Southern mills as new mills are built and existing mills expanded. By such thinking, power systems are becoming more flexible, easier to expand in the future, and easier to shift to meet the ever changing steam and power requirements of the future.

Three major points of engineering are involved in this future flexibility and each point shows up in the trend of the industry.

Power units are increasing in size. The ever increasing demand for steam and power has resulted in an increase

in the unit size of boilers and turbo generators, although the general boiler trend has been much less accentuated than the increase in turbo generator capacity.

This increase in unit size is the result of the increased steam and power requirements and the economic laws that make the installed cost of two small units higher than one large unit. Against the economic factors must be weighed the question of flexibility, but today's boilers in industrial plants are considered to have an availability of better than 90% and today's turbo generators to have an availability of over 98%. With this in mind, thinking leans towards large single unit installations for providing the most equipment for the least capital investment.

In some instances, outdoor power plants have been installed in an effort to further reduce power plant costs. Fig. 1 shows the outdoor installation of a 15,000 kw automatic extraction steam turbine in a Louisiana paper mill.

LARGER UNITS IN SOUTH—The size of Southern mills has increased rapidly during the last ten years. These mills are realizing economics in power plant costs by installing larger generating units. Within the past five years, the Southern paper industry has purchased about 500,000 kw of steam turbine generating capacity and the average rating is greater than 10,000 kw capability.

In addition to lower initial investment, use of the larger units will also reduce other operating costs. A lower rate of fixed charges would, of course, reduce the total cost of power generation. Use of larger units and multi-unit stations will decrease all elements in the cost of power generation, particularly the item of labor.

Generated voltages have kept pace with the increase in turbine size and the increased steam pressures. While at one time it was economical to generate and distribute at 2400 volts, this is too low a voltage for today's power demands and equipment ratings. Even where a 2400 volt mill system is in existence, a major expansion in power generating facilities would probably be most economical at 13,800 volts and the higher voltage level provides the necessary flexibility for future additions to the system.

While it is possible to expand an existing mill at the 2400 volt level, it is complicated, expensive, and an annoying limitation on the size of equipment that can be readily used. For instance, a 12,500 kva generator at 2400 volts has a rated current of 3000 amps, requires two circuit breakers to handle the current and a duplex reactor to split the output and limit the fault duty on the switchgear.

THE AUTHORS—GEORGE E. SHAAD, left, and W. B. (BILL) WILSON, right, are co-authors of PULP & PAPER'S article on power generation in Southern pulp and paper industry.

The same generator at 13,800 has a line current of 523 amps, requires one breaker, requires no reactor, and adequate switch gear is no problem. The lower installed cost of the higher voltage power distribution system is an added attractive point to the mill engineers. This is particularly true today in view of the ever increasing use of load center distribution where local substations feed the adjacent load areas.

HIGHER PRESSURES AND TEMPERATURES—The third point of today's trend involves the use of higher initial steam pressures and temperatures to obtain more kw per lb. of steam. Initial steam conditions of 1250 psig–950 F are as readily accepted in paper mill power plants today as 400 psig–650 F was 25 years ago. The unit shown in Fig. 2 is rated 15,000 kw and operates with initial steam conditions of 1250 psig–950 F with automatic extraction or admission at 600 psig and exhausting at 75 psig.

While steam and power consumption varies in different mills and with different products, steam turbines have the flexibility to meet these varying mill requirements. The manufacturers work out the application requirements with the paper mill power engineer and his consultant and then manufacture a custom tailored turbine from standard component parts. This flexibility has established the steam turbine as the paper mill power plant's most useful tool in reducing the important item of steam and power costs.

The use of higher initial steam conditions tends to offset the decrease in "by-product" power generation which would otherwise have resulted due to the trend in recent years to:

(1) A general increase in the pressures of process steam which is extracted and/or exhausted from steam turbines.

(2) A decrease in the number of pounds of steam required per lb. of paper and an increase in the kw hours of electric power required per ton of paper.

With the trend to larger units, initial steam pressures and temperatures will continue to increase. Historically, initial steam temperatures in our utility plants have increased at the rate of 12° F per year. There is no indication that this trend will be changed. Utility units are now in service operating at 1100 F and units on order are being designed for 4500 psig 1150 F or above. Steam conditions for some of the typical units which are in operation in the Southern paper industry are shown in Table I.

By utilizing higher initial steam conditions, the mill heat balances are being maintained and a large part of the total mill power requirements generated as "by-product" power. This by-product power is generated at an efficiency of 75% or more, while the most modern utility power plants, installed for the generation of electric power only, have an efficiency lower than 40% and the average is below 30%.

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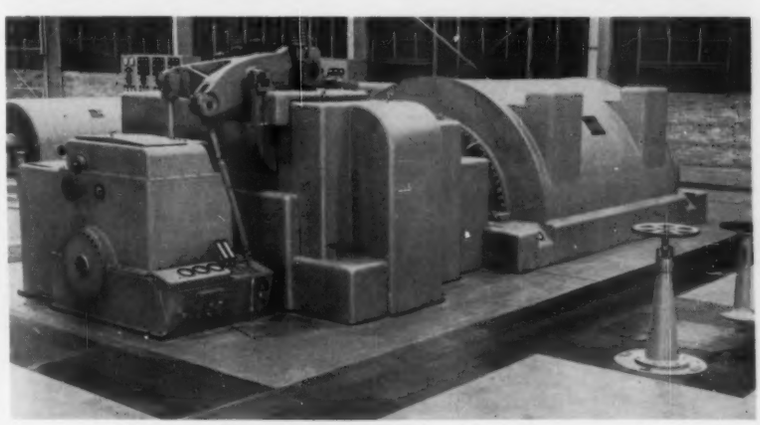

FIGURE 2—TYPICAL 15,000 kw AUTOMATIC EXTRACTION noncondensing steam turbine generator.

USE OF AUTOMATIC-EXTRACTION TURBINES—Even though the cost of "condensing" kw is appreciably higher than "by-product" kw, mills usually find it economical to make at least a part of their generating units automatic-extraction condensing steam turbines. This permits generation of kw independent of the use of process steam when such operation is desired. This is a practical operating requirement for any plant operation like a paper mill.

The automatic-extraction condensing steam turbine is the workhorse of the paper mill power plant—it can generate kw and can vary steam flow to control pressure in any one or all of three or more mill steam systems. Steam pressure and frequency can be closely controlled even when steam flows and electric power requirements vary over a wide range. Modern turbine governing mechanisms are fast enough to keep up with these abrupt changes in mill requirements without attention from the operator.

New developments will provide the paper industry with new tools to further reduce steam and power costs in the future. The combustion gas turbine, for example, has now taken its place as a proven prime mover to supply power and steam or other forms of process heat. Where process heat requirements are low and additional power is to be generated, the gas turbine may very well offer savings in first cost as well as savings in fuel and other operating costs.

Rating KW	Initial Pres.	Initial Temp.	Exhaust	Automatic Extraction, PSIG No. 1	No. 2	No. 3
9,375	800 psig	825 F	3" HG	50		
5,000	800 psig	825 F	3" HG	150		
5,000	800 psig	825 F	3" HG	50		
15,000	850 psig	825 F	3" HG	165		
10,000	850 psig	825 F	50 psig	150		
10,000	850 psig	825 F	2-1/2"HG	50		
15,000	1250 psig	950 F	75 psig	600		
10,000	1200 psig	950 F	2" HG	400	150	80
10,000	850 psig	825 F	2-1/2"HG	175	75	
12,500	850 psig	825 F	75 psig	175		
7,500	1200 psig	950 F	80 psig	410		
5,000	850 psig	825 F	3" HG	35		
7,500	850 psig	825 F	35 psig	125		
5,000	850 psig	825 F	3" HG	35		

TABLE I—STEAM CONDITIONS for typical turbine generators in Southern pulp and paper mills.

GAS TURBINE USEFUL—The gas turbine has several natural applications in paper mills. Fig. 3 is an artist's rendering showing a gas turbine with exhaust heat recovery boiler to supply process steam for mill use. The gas turbine, exhausting to supplementary fuel fired or to fuel fired

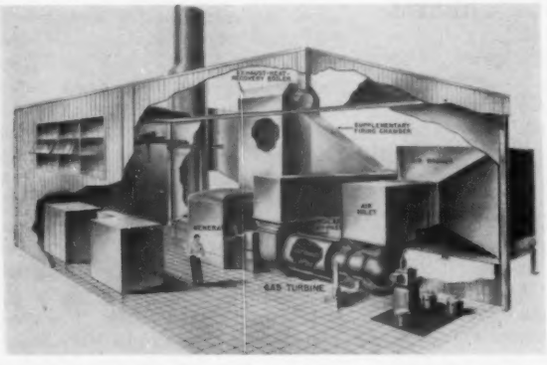

FIGURE 3—GAS TURBINE POWER PLANT with supplementary fuel fired exhaust-heat recovery boiler.

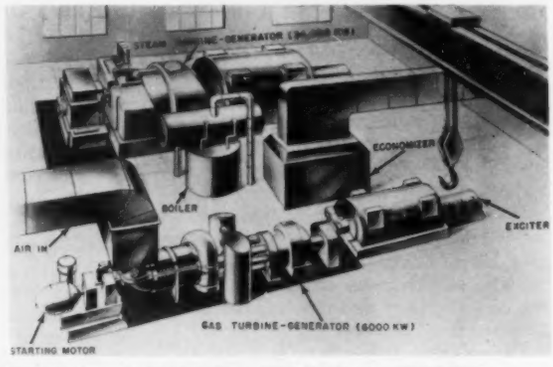

FIGURE 4—COMBINED STEAM-GAS TURBINE power plant with gas-turbine-supercharged boiler.

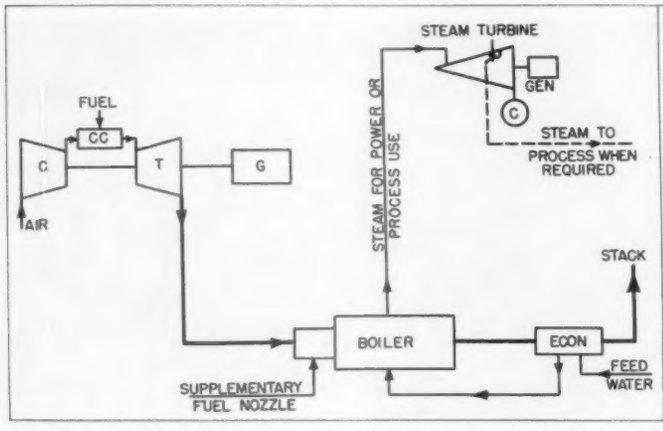

FIGURE 5—GAS TURBINE with supplementary fired exhaust heat recovery boiler to supply steam for boiler or process use.

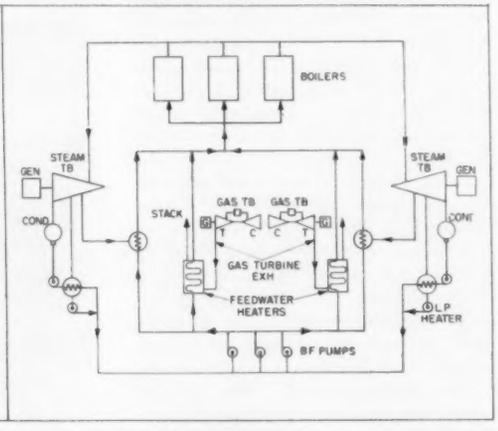

FIGURE 6—DIAGRAM SHOWING gas turbine exhaust heat recovery for feedwater heating.

steam boilers, can be used to top steam plants to bring mill steam and power requirements into better balance. Such an arrangement is indicated in Fig. 5. The exhaust can also be utilized as highly preheated combustion air for recovery boilers.

The gas turbine may also be used for heating feedwater in existing steam plants where it was not economical to install extensive feedwater heating at time original plant was installed. Two units installed in a utility plant for this purpose are shown diagramatically in Fig. 6. Since turbine exhaust temperature ranges up to 850 F or more, there is much flexibility as to where this heat energy can be utilized in the paper industry. By careful study of the application, the gas turbine may service as an economical addition to many mills.

For larger plants, the gas turbine supercharged boiler may be considered instead of the present day boilers with furnaces operating at essentially atmospheric pressure. Fig. 4 shows such an arrangement which has the advantage of reducing physical size of the boiler and permitting generation of additional "by-product" kw.

What else the future holds depends on many factors, unknown today. Some prospects, however, are in the minds of all engineers.

ATOMIC POWER POSSIBLE—Atomic power, an often discussed subject these days, holds great promise for the future. Even in our fossil fuel rich country, new power plant fuels must be developed if we are to continue our industrial growth. The first atomic power plants will be for large utility systems—the first expected to be in commercial operation by 1960. By 1975, it is possible that almost half of the new utility generating capacity being installed will be nuclear fueled.

Atomic power plants will take their place in the paper industry as soon as they are economic in unit sizes that can be utilized in industrial plants.

The Southern pulp and paper industry will certainly keep pace with all of the developments that can be utilized to reduce the cost of steam and power. Today it may be gas turbines, or larger units, or higher initial steam conditions, while tomorrow it may be atomic power. Each will be utilized in this tremendous industry as soon as it is economically useful.

Ontonagon Plans

National Container Corp. announced the Ontonagon, Mich., mill, not now operating, will be sold or reconditioned to manufacture semi-chemical pulp.

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In Canada, Vancouver, British Columbia and Toronto, Ontario.

FOURTH YEAR CLASS GRADUATES 30 AT CAMAS SCHOOL. Left to right: **First front row:** Ray A. Pearson, Elbert J. Lewis, John A. Miller, Edward W. Craven, Lawrence D. Honeycutt, Alfred Piche.
Second row: Eugene E. Jacobs, Robert C. Hitchcock, Richard A. Watt, Daniel E. Beasley, Paul M. Henry, Richard G. Carter, Wilbur F. Bellinger, William W. Locke.
Third row: Wilbert Kalmbach, Richard G. Cleaver, Waldemar Herr, Gene L. Yarnell, Thomas Paisley, Jerome Kiedrowski, Fredrick D. MacArthur.
Fourth back row: Porter A. Newman, Jerome R. Jendro, Lowell E. Bobbitt, Alan D. Kircher, Albert C. Powers.

Unique School Gives 261 Diplomas

Crown Zellerbach's Paper School winds up 23rd year with record breaking attendance in two of its four classes

• Diplomas went to 261 men and women employes of Crown Zellerbach Corp. March 14 and 15 in recognition of successful completion of this year's courses at the CZ Paper School at Camas, Wash. This ended the 23rd year of the unique college-accredited school.

Participation has been so large in recent years that the school holds two separate graduation exercises, for first and second year students one night, for third and fourth year students the following night.

G. H. Gallaway, resident manager of CZ Camas mill and a regent of the paper school, officially welcomed students to the ceremonies. He pointed out that the current second-year class is the largest of the school's history; the third-year group, second largest.

HONORARY DEGREE. Vice Pres. E. P. STAMM (r), in charge of CZ's Northwest timberlands, receives Honorary Doctorate —Crown Zellerbach Paper School's highest tribute—from School Regent R. O. HUNT, Vice Pres. of CZ, who presented diplomas to 3rd and 4th year graduates.

SPEAKERS AT GRADUATIONS. A. M. CADY (left), Paper School Dean and Asst. Supt., Gen. Mill Maint., who presided; DR. HENRY SCHMITZ (middle), U. of Washington Pres., speaker for 3rd and 4th Year classes; MARSHALL N. DANA (right), Asst. to Pres., U.S. National Bank, addressing 1st and 2nd Year classes.

He emphasized to students the importance of what they think about their job. He said student employes are among the best informed workers concerning their organization; they know where they stand in it, and what the outlook is.

Dr. Henry Schmitz, president, University of Washington, in addressing the third and fourth year classes, paid credit to CZ's visionary outlook in having established this school during the depression years.

He said there are few opportunities throughout the world for employes to so effectively learn how an organization operates as those provided by this school.

Marshall N. Dana, assistant to the president, U.S. National Bank, Portland, Ore., addressed first and second year classes. He told students that although learning papermaking is important, the school teaches factors even more important—honesty and business ethics.

Mr. Dana pointed out that the paper school is a course of study covering the entire business of paper from growing trees to marketing the finished product.

"The paper school will help interdepartmental relations, for cooperation is easy and natural when a person understands the problems and responsibilities of others," he said. "A few

will use their paper school record to obtain college credit toward a degree in forestry, chemistry, or chemical engineering."

The Camas school continues to attract international recognition and study as a model of industrial education. It has graduated 422 students from the full four-year course. Students matriculating at Oregon and Washington colleges and universities can receive full college credit for studies satisfactorily completed here.

Classes include personnel from Camas, West Linn and St. Helens mills, Molalla woods operation, and office and subsidiary plant personnel in Portland and North Portland, Ore.

PARTICIPANTS, PROFESSORS, ETC.—R. O. Hunt, regent of the school and CZ vice president, presented diplomas and awards to third and fourth year students. Also, an honorary ph.d. to Vice Pres. E. P. Stamm, head of CZ's Northwest timber department, in recognition of contributions he made to success of the school's activities throughout its 23 years. He participated as lecturer, and otherwise, each year since its founding the school.

C. A. Enghouse, associate dean of the school and assistant resident manager, West Linn, presented diplomas and awards to first and second year students.

Dean A. M. Cady, assistant superintendent, general mill maintenance, presided at both graduations.

CZ Paper School, headed by three regents—Mr. Hunt and Resident Managers Gallaway, Camas, and M. J. Otis, West Linn—is administered and staffed by Camas, West Linn and St. Helens personnel.

Faculty professors and associates (from Camas mill unless otherwise noted): R. R. Morris, technical asst. to paper mill supt.—tissue; O. C. Wheeler, asst. sulfite mill supt.; A. W. Neubauer, supervisor, coating and sizing; W. L. Rich, head converting plant inspector; P. M. Schnabel, kraft mill supt., St. Helens; H. L. Ostenson, asst. to paper mill supt.—tissue; R. G. Stewart, sulfite mill shift foreman; M. R. Rivers, asst. gen. supervisor, steam power maintenance and operation; J. E. McCourt, technical supervisor; E. A. Woodworth, tech. asst. to filter plant supervisor, West Linn; L. E. Semke, development chemical engineer; C. T. DeVoe, inspector, maintenance and control dept.

Leona Blair, stenographic dept. supervisor, is registrar. Faculty advisors: W. C. Jacoby, supervisor of pulp production, St. Helens; P. V. Millard, asst. to supervisor, product quality and development; G. D. Bailey, project engineer, paper machines and finishing; D. P. Ashton, asst. technical control and quality supt., West Linn; H. W. Theller, research specialist, Central Research Dept.; C. A. Anderson, development chemical engineer; H. D. Johnston, personnel and safety supervisor, St. Helens.

HONOR AWARDS—Each of 30 fourth-year graduates received, in addition to a diploma, a copy of "Mak-

THIRD YEAR CLASS, 1956, at CZ SCHOOL. Left to right, **Front Row:** Loren C. DeMan, Delmer D. Hinrichs, C. J. McKinnie, Ralph S. Jacobson, Robert L. Gaiser, Donald Mosen, Verlin R. Cotton, Jack W. Schatz. **Second Row:** Marvin M. Brawner, Allen L. McDonald, Elven V. Anderson, John Bais, Dean J. Ritter, John J. Rods, Joseph L. Guthrie, Raymond E. Hanson, Franklin Terrall, Peter J. Hovet, Russell J. Roberts, Herbert Bottemiller. **Third Row:** Ernest Correia, Hal K. Seeds, Ervin B. Degerness, Keith C. Matson, James C. Rich, C. Duane Cartier, Jerry C. Stroman, Henry W. Rehr, Placid R. Goulry, Michael M. McCutcheon. **Fourth Row:** Charles W. Hoxsie, Jr., Richard G. Holcomb, David W. Wells, Wilbur M. Brunell, Arnold R. Castor, Eldred W. Turner, Maurice W. Burke. **Fifth Row:** Rupert P. Laidig, Vernon C. Karns, Bernard Dorman, Adrian E. Douglass, Donald Fifield, Myrno A. Madden, Don H. Pearson, Hayden H. Hinshaw, Don H. Michel, Elden W. White.

WINNERS OF NORTHERN PACIFIC COAST MILLS TRIP—GRADUATING CLASS WINNERS. Fourth Year Class 1st and 2nd place awards (left to right): T. C. PAISLEY and ROBERT HITCHCOCK, both of Camas; and R. A. WATT and CHARLES BLOCH, of West Linn. Mr. Paisley and Mr. Watt were first place winners.

THIRD YEAR AWARD WINNERS—C-Z School (left to right): Camas Mill—MYRNO MADDEN, First; ELDEN WHITE, Second; West Linn—R. L. GAISER, First; W. M. BRUNELL, Second; St. Helens—J. L. GUTHRIE, First D. J. RITTER, Second; Other Divisions—H. W. REHR, Portland Office, First.

SECOND YEAR AWARD WINNERS at C-Z School (left to right): Camas Mill—Mrs. F. EILEEN RYAN, First; L. H. RYAN and C. E. GENTRY, tied for Second; West Linn—E. C. MAYS, First; J. L. CAULK, Second; St. Helens—L. B. ZURCHER, First; E. D. FROST, Second; Other Divisions—H. W. PRIBNOW, Molalla, First.

The DRAPER Felt
DRAPER BROTHERS COMPANY
CANTON, MASS.

ing Paper," the school's own 700-page text authored by CZ personnel, and a gift subscription to PULP & PAPER.

Top honor awards—a trip to Crown Z's northern mills for fourth year winners—went to Thomas C. Paisley and Richard A. Watt, for first place; Robert C. Hitchcock and Charles J. Block, second place.

Third year awards: **Camas:** First place, Myrno Madden, Vols. 1, 2, 3 of "Pulp and Paper Manufacture"; second place, Elden White, "Pulp & Paper," Vol. II by James P. Casey. **West Linn:** First place, Robert L. Gaiser, Vols. 1, 2, 3 of "Pulp and Paper Manufacture"; second place, Wilbur M. Brunell, "Pulp & Paper," Vol. II. **St. Helens:** Tied for first place, Joseph L. Guthrie and Dean J. Ritter, both receiving Vols. 1, 2 and 3 of "Pulp and Paper Manufacture." **Other divisions:** Henry W. Rehr, Portland office, first place, Vols. 1, 2 & 3 of "Pulp and Paper Manufacture."

Second year awards: "Paper Making" by Dard Hunter for first place, "Pulp & Paper," Vol. I by James P. Casey, for second place. **Camas:** First, Mrs. F. Eileen Ryan (daughter of Cecil Knapp, supervisor No. 2 finishing room), third time this top award has been won by a woman student. Tied for second, Carlyle E. Gentry and Lyle H. Ryan. **West Linn:** First, Elmer C. Mays; second, James L. Caulk. **St. Helens:** First, L. Burton Zurcher; second, Eugene D. Frost. **Other divisions:** First, Harry W. Pribnow, Molalla; second, Fred D. Bernard, North Portland.

First year class awards, "Paper Making" by Dard Hunter for first place, "Pulp & Paper," Vol. I by James P. Casey, for second place. **Camas:** First, Leland A. Kelson; second, Joseph Kacin. **West Linn:** First, Merl C. Rees, second, H. Dale Marquis. **St. Helens:** First, William D. Lauritzen; second, Melvin G. Scharringhausen. **Other divisions:** First, John A. Burton, Portland office; second, Francis H. King, Portland office.

FIRST YEAR AWARD WINNERS AT CZ SCHOOL (left to right): J. A. BURTON, First, Portland, Ore., Office; LELAND KELSON, First Place, Camas Mill; W. W. LAURITZEN, First, and M. G. SCHARRINGHAUSEN, Second, both of St. Helens; H. D. MARQUIS, Second, West Linn; F. H. KING, Second, Portland office.

Honorable mention awards, two-year subscriptions to PULP & PAPER, were presented to runner-up winners of each class: First year—Dean K. Olson, Ernestine Michels, Edward R. Wilson, Raymond Poppe, Gene A. Loomas, and George E. Stevenson; second year—James L. Stoll and Robert E. Lorenz; third year—Delmer D. Hinrichs; fourth year—Ray A. Pearson, Porter A. Newman and Richard G. Carter.

Oxford Appoints Stora Pulp Agent

Oxford Paper Co. has appointed Stora Kopparberg Corp., 230 Park Ave., New York, as sole sales agent for Oxford bleached and unbleached hardwood sulfate pulp. The pulp is produced at Rumford, Me.

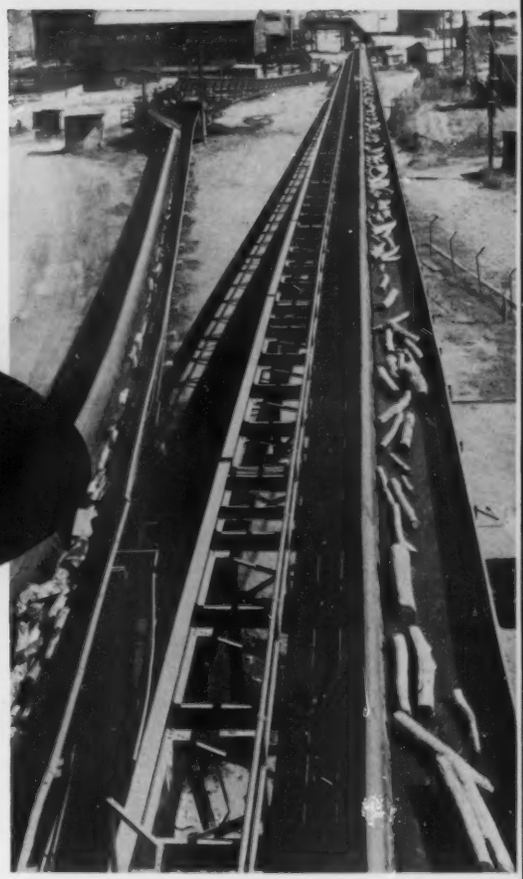
Karl Clauson, president of Stora, was for many years executive secretary of Pulp Consumers Association.

Laminates Plastics To Paper

First machine in the Far West to do so is this "polyethylene extruder," a $135,000 device which lays a thin film of tough, clear plastic on any paper from tissue to heavy cardboard, making them virtually impervious to water and heat, yet still flexible. It is at Western Waxed Paper Division plant of Crown Zellerbach, No. Portland, Ore. It forces pure polyethylene pellets through a heated gun-type device, extruding the liquid in a 6-ft.-wide film as thin as 1/1000 in. It will use up to 600 lbs. of plastic per hour and coat enough paper, to make 2500 rolls of Loczin freezer wrap every 8 hours. Four miles of electrical wiring went into the installation. It is completely electronically controlled. (L to r) LESTER WHITE, Control Panel Operator; G. W. DONALD, Manager; AUTHUR ARONSEN, Asst. Plant Mgr., and B. W. LAUNTZ, Plant Supt.

CHAIN BELT answers your wood handling problems...

BY GIVING YOU ONE SOURCE FOR ALL YOUR DRIVE CONVEYING OR ELEVATING NEEDS!



For the long haul, Rex Belt Conveyor Idlers and Chains carry barked pulp logs to the chipper. These conveyor components are big favorites because of their lasting qualities and low maintenance.

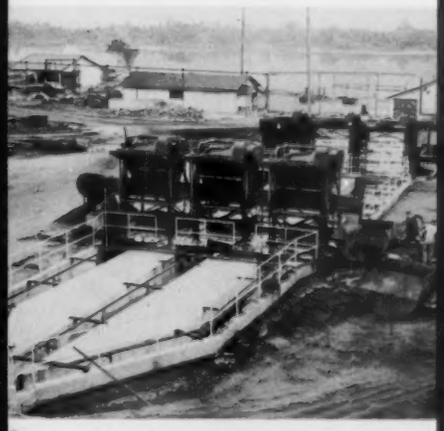
COMPLETE HANDLING SYSTEMS ...

Not only does CHAIN Belt make chains, belt idlers, bearings for your power transmission, conveying or elevating needs ... it also designs *complete* wood handling systems!

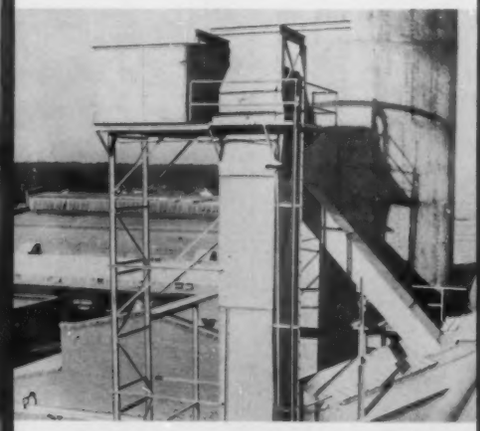
And why not? CHAIN Belt has over 50 years' experience supplying products and solving difficult materials handling problems for sawmills ... pulp mills ... softwood, hardwood, plywood plants ... and other forest products industries.

Shown here are but a few examples of handling systems that CHAIN Belt has designed or supplied components for — systems that have paid big dividends in time saved, increased capacity and lower costs.

This service of CHAIN Belt is at your disposal. It includes top-flight engineers, draftsmen and manufacturing facilities to handle every type of wood handling problem. This service may be able to help you improve your materials system — speed production, reduce costs. Consult your CHAIN Belt Company District Sales Office or send the coupon for further information.



Three chain and bucket grit collectors in this paper mill log handling flume prevent floating bark, dirt and other debris from clogging and damaging water pumps. These CHAIN Belt Grit Collectors save costly repair and maintenance to the pumps and keep the closed-circuit flume system working at top efficiency.



This Rex Wood Chip Elevator is especially designed for handling chips up to the top of the digestor or to the screens. Special steel buckets and a high-speed belt provide tremendous capacity — can be designed to handle from 12 to 15,000 cubic feet per hour! This unit assures smooth, steady flow of materials at minimum maintenance and operating cost. Another example of CHAIN Belt ability to solve economically your wood handling problems.

In the mill, this Rex Apron Conveyor is used for feeding barked logs to the grinders. It is 66 inches wide on 228-foot centers. The system has a capacity of 30 cords per hour. Teamed with company and consulting engineers, CHAIN Belt developed this system that has many new innovations to speed production, cut costs.

CHAIN BELT COMPANY

LEADERSHIP ... through creative engineering

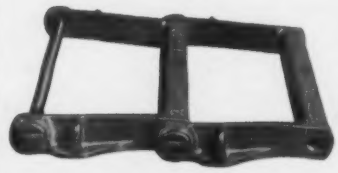
For complete plant service, a full line of chains, bearings, idlers —

CHAIN BELT has the answer to lower costs for every WOOD HANDLING job!

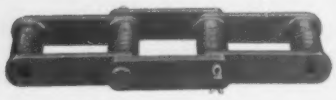
• Here, from the *complete* line of CHAIN Belt products you will find the answer to your power transmission, conveying or elevating problems. Not only will you find the exact chain, idler or bearing to fit your work — you will find the highest quality and dependability . . . quality built on over half a century's experience supplying the forest products industry.

Carefully selected metals . . . skillful hardening or heat-treatment . . . experienced workmanship and design . . . combine to produce the finest products — products that give you longer service, reduce down-time and cut maintenance costs. Whatever your wood handling problem, CHAIN Belt will give you the cost-cutting answers.

Rex H-Type Mill Chain — Most popular of all sawmill size chains for conveyor use. A tough, versatile chain with special wearing shoes for sliding.

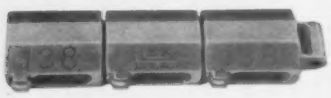


Rex H-Type Mill Conveyor Chains—Used for conveying slabs, chips, sawdust and refuse. Heavy, one-piece links with thick barrel provide long wear and good scraping action.

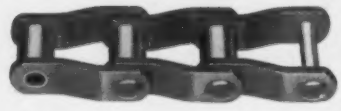


Rex Durobar and Combination Chains — A proven standard for wood handling service. Eccentric barrel of Durobar chain reduces wear on both chain and sprockets.

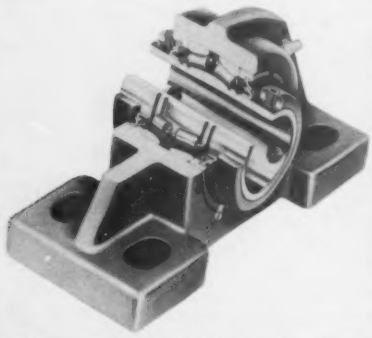
Rex Roller Drive Chain—The ultimate in high-speed drive chain. Highly flexible to withstand heavy shock loads. Precision-made for longest life. Available in single or multiple strands for a variety of drive uses.



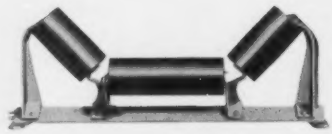
Rex Roof-Top Transfer Chains — Primarily a green chain, but frequently found in sawmill transfer service. Choice of peaked or flat roof-top design. Flat roof generally used for handling finished lumber as it will not score.



Rex Chabelco Chains — For severe conveyor service, Rex Chabelco Chains are first choice. Available in both straight and offset side bar construction. Also special Chabelco Chains designed for log deck, log haul-up, trimmer, etc. service.



Shafer Self-Aligning Roller Bearings — These bearings combine the best advantages of the roller and the ball by using concave rollers operating between convex races. Their stamina and dependability have been proved under extreme load conditions found in the lumber and pulp industries. Their reserve capacity is your assurance of longest life and continuous peak performance.



Rex Style No. 46 Troughing Idler — Specially designed for handling wood chips. Concentrating rolls of the idler are sloped at 45° to provide exceptional carrying capacity. This feature permits loading of chips close to the belt edge without spillage and gives the belt additional carrying capacity when compared to the conventional 20° sloped idlers.

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Dept. FP-2
Milwaukee 1, Wisconsin

☐ Please send catalog on Rex products for the Forest Products Industry.

☐ I would like to discuss my wood handling problems with a CHAIN Belt District Sales Engineer.

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Can Buy New Texts through PULP & PAPER

• The textbooks entitled "Pulp and Paper Manufacture," sponsored officially by both the American and Canadian industries, have been completely revised and brought up to date.

Original work on these texts goes back to 1918, and many well known authorities in the industry participated. There are now four entirely new volumes available, individually or as a set, for a reduced price. The new set was completed, each volume individually, between Sept. 1950 and Mar. 1955.

Readers may order the complete set or individual volumes through PULP & PAPER. Send orders to: The Book Shelf, Circulation Dept., PULP & PAPER, 121 Second St., San Francisco, Calif.

Prices are as follows:

Vol. 1—subtitled "Preparation and Treatment of Woodpulp" (1,043 pages)—$10.00

Vol. 2—subtitled "Preparation of Stock for Papermaking" (587 pages)—$7.50.

Vol. 3—subtitled "Manufacturing and Testing of Paper and Board" (945 pages)—$11.00.

Vol. 4—subtitled "Auxiliary Paper Mill Equipment" (732 pages)—$9.00.

All four volumes of "Pulp and Paper Manufacture" can be purchased for $31.50. The set or volumes may be ordered for approval, 10 days limit.

HOW IT STARTED—Inception of these textbooks goes back to World War I. There was a realization that the industry had begun to change rapidly. There was need for better trained men. Most available books were out of date.

Technical divisions of the Canadian and American industry sent education committees to a joint meeting in Buffalo, N.Y., Sept. 16, 1918, and as a result the Joint Executive Committee, later the Joint Textbook Committee, was formed.

Members were George Carruthers, chairman, and T. L. Crossley, for Canada; George E. Williamson, R. S. Kellogg, secretary, and C. P. Winslow (later succeeded by Ray Hatch), for U.S.A. J. N. Stephenson, of Canada, was editor.

The first budget was $57,000. Few probably realized what a big job was ahead. The first set of books constituted 5 volumes, 2,777 pages. At least 100 men, engineers, scientists, etc., in the industry, took part, as authors of sections, as critics or editors.

Next came revisions of Vols. 3, 4 and 5.

In 1942, Mr. Williamson succeeded Mr. Carruthers as chairman, and the latter was succeeded by Harry Spencer. Mr. Crossley was succeeded by Douglas Jones. Mr. Spencer succeeded Mr. Williamson as chairman, when the latter died, and R. G. Macdonald was added to the committee. Only Mr. Kellogg and Mr. Stephenson remain of the original group.

WORK ON NEW SERIES—Work on the new series, now offered, began in 1940. It proved even a more stupendous job.

Total sales of all volumes of all editions are well beyond 70,000 copies. Never has the committee found itself financially embarrassed. Royalties on sales of the books have been more than sufficient to meet obligations. Total expenditures have been about $120,000.

McGraw Hill Book Co. has served as publisher. McGraw-Hill calls this the outstanding example of industrial text and reference book publishing.

Dana Writes Basic Book on Forest Policy

Samuel Trask Dana, dean emeritus, school of natural resources, University of Michigan, has authored a new book entitled "Forest and Range Policy—Its Development in the United States," which should serve as a valuable basic reference to industry executives and foresters in any forest products industry.

It covers the development of forest and range policy from colonial years. Special attention is given to influences and legislation and federal government policies and activities. Of course it will be useful, also, for students, but the management and professional men in industry would find it useful, too.

Copies, $6.50 apiece, may be ordered through the Book Shelf, PULP & PAPER, 121 Second St., San Francisco 5, Calif.

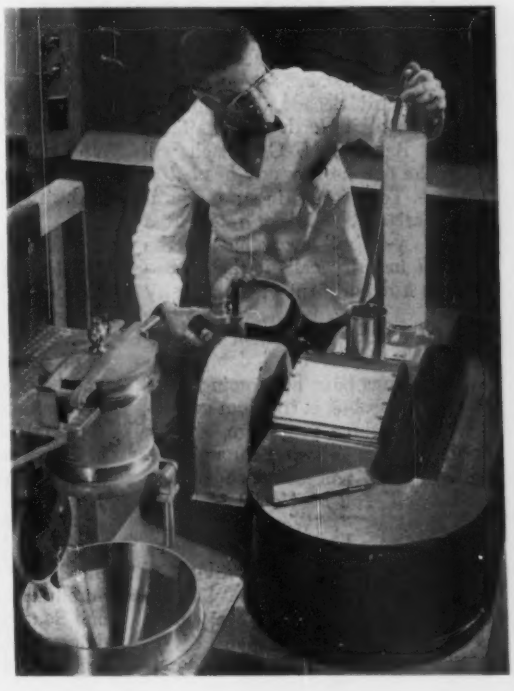
Pinder Heads Research In New Recovery Technique

The Pulp and Paper Research Institute of Canada announces appointment of Dr. Kenneth Lyle Pinder, m. eng. (McGill U.) '52 and ph.d. (Birmingham in England) '54, to the task force engaged in developing the atomized suspension technique for sulfite waste liquor recovery and other applications.

Born in Chaplin, Saska., and now 27, Dr. Pinder attended McGill on scholarships, winning the British Association Medal for Great Distinction. He did research on heat and mass transfer rates in particle clouds involved in spray drying, and on variation of interfacial tension and internal circulation in falling droplets, both closely related to his present assignment.

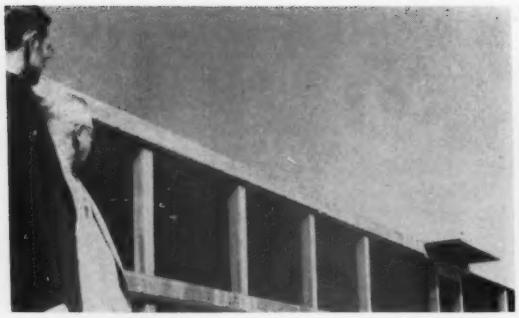
Addresses Ga. Tech Clinic

William F. Diehl, Jr., Southern editor for PULP & PAPER, based at Atlanta, Ga., was a featured speaker at the second annual Publications Clinic held at Georgia Institute of Technology.



New Research Labs for Dow

This picture is taken in new Biochemical Research Dept. $1,100,000 laboratories at Midland, Mich. Dr. Charles C. Humiston is shown here producing paper pulp in the labs, as one part of the research going on in the addition. Actually there are 26 laboratories in the one-story addition, with 64 on the staff.



DREAM TAKES SHAPE on North Carolina campus as new pulp and paper laboratory nears completion. At left, LIBBY and HUTCHINGS look on as building takes shape. At right, the lab as it nears completion.

A PULP & PAPER Field Report

N. C. Paper School Looks To Future

New $225,000 laboratory, increased enrollment, steadily growing interest in Foundation help meet industry demands

● Prof. C. E. Libby leaned back in his chair at North Carolina's growing pulp and paper school and said with a smile: "All we need now is a half million dollars and we can put in a paper machine."

He smiled, half-joking, but enthusiasm over the growth of this new training ground for industry men is no joke. He will tell you that in 10 years he not only hopes to have his paper machine but also all the equipment that goes with it, beaters, refiners, perhaps even a pulp bleaching set up.

In the next decade, he hopes to have a school at North Carolina State College, Raleigh, N. C., which will match the one he formerly headed at Syracuse. Technically, in strict educational parlance, it is not rated as a "school" yet–but everyone in the Southern industry calls it that. Actually it is a department of the forestry school.

To match the department at Syracuse is a tall order but judging from the way things have been going since the North Carolina curriculum got underway just three years ago, not an impossible one. A swing through the Southern mills will convince anyone it is needed. You hear a lot of headaches aired. . . . "We may run into a bit of a wood problem next year" . . . or, "The water situation looks a little grim hereabouts" . . . but always there's one shortage every mill has in common:

"What we need is top men . . . there just aren't enough qualified men in the industry."

One answer is to attract them from other industries and retrain them. But with the industry stretching at the seams, there can be little doubt that a school to train pulp and paper men in the South is as welcome as a cool drink on a hot night.

At North Carolina State College, the pulp and paper technology courses seems to be nearing the time when they will actively begin filling this shortage. The Pulp and Paper Foundation, Inc., founded Feb. 5, 1955, gets larger every day. A look at the mills and suppliers sponsoring this scholarship and building fund reads like an industry who's who.

INTEREST IS GROWING–Testifying to the fact that such a school is not only needed but is welcomed with proverbial open arms is shown in the increasing enrollment. This year, 25 high school students–all representing youths in the top 10% of their classes (no student is admitted lower than the top 25%)–signed up for the course.

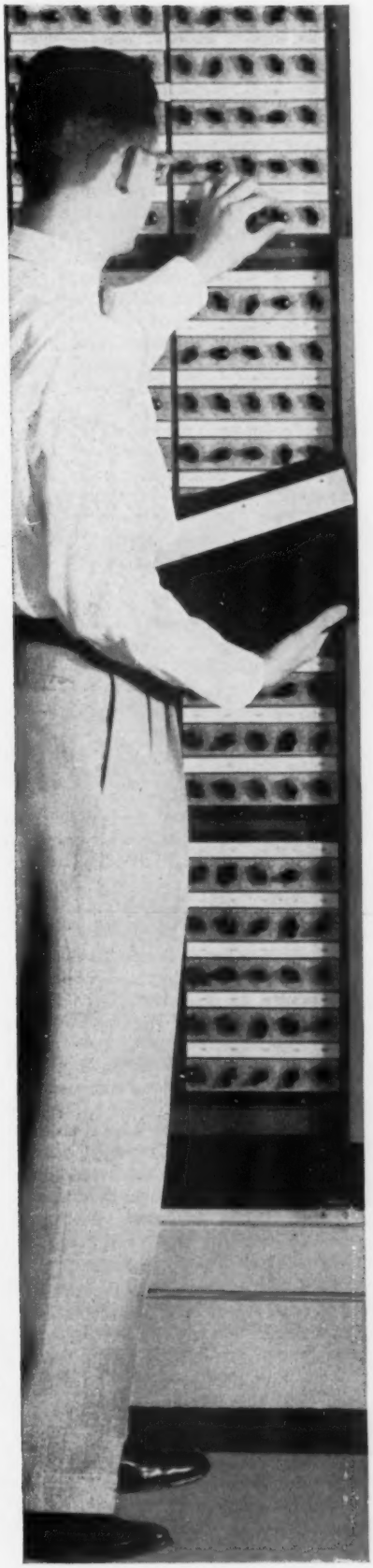
Last year there were two seniors and the present junior class numbers 10.

Top companies are now sending promising high schoolers to look over the North Carolina school and plan enrollment at company expense. In one Southern mill town, when it was determined that math courses in the high school were below par, the company actually took an active part in improving the math curriculum so future students would have the proper background.

PROF. C. E. LIBBY–"The industry can use every man we can train here . . . we can't grow too big."

HOW IT GOT STARTED–Establishment of an entirely new curriculum at a college is a rare thing. Reuben B. Robertson, Sr., president of Champion Paper & Fibre Co., Canton, N. C., first approached Dean Richard J. Preston, of North Carolina's Forestry School, with the idea of a pulp and paper department in 1951. Within a year it was started.

A personal letter from Mr. Robertson to executives in top mills all over the South was greeted with surprising response. One mill sent $4,000. An-



Panalog Information Systems guide management in raising plant output and profit

Panalog 605 Information System supplies management control information. Now, operating personnel and management can receive organized digital information on any process, instantly and continuously. Information can be presented in a variety of forms for immediate control action as well as for engineering and accounting analysis. A typical presentation method employs an electric typewriter and patented log chart. Readout can also be made on punched or magnetic tape, punched cards, or can be fed directly to computers.

Periodically logs and continuously scans. A precision servo measuring system quantizes process variables during automatic, periodic logging. A high-speed electronic measuring system detects off-normal conditions during continuous scanning of all variables. Normal and return-to-normal values are printed in black—off-normals in red. A complete log of all variables as well as a summary of off-normals can be made at any time.

Completely flexible and expandable. Panalog components are standardized, packaged modules. The system can be easily expanded or modified in the field. The Panalog 605 is sufficiently flexible to supply digital information for any management requirement.

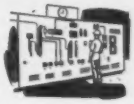
Write for literature. Literature presenting a comprehensive treatment of the Panalog 605 is available. If you wish, a Panellit representative in your area will be happy to discuss the possibilities that a Panalog Information System offers your company.

Full scale, adjustable, high and low off-normal limits are provided for each input variable. Basic system capacity, 200 points with one electric typewriter — can be expanded. Accuracy, ±.25% of full scale range. Logging speed, approximately one line per minute. Scanning speed, five points per second, between logs.

Logged values are grouped by processing unit on chart. Audio-visual alarms accompany detection of off-normals. When scanning, off-normal values are identified and printed in separate chart area. Totalized and averaged values as well as plant efficiencies can be automatically computed and recorded by the system.

U.S. Pat. No. 2,701,748

Engineered Information Systems For Industry



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other sent a $5,000 donation and added $4,000 more later. Champion, Camp Mfg. Co., Brunswick Pulp & Paper, Hollingsworth & Whitney division of Scott Paper, Union Bag and Buckeye Cellulose were the first six companies to sponsor the school.

Today, more than 20 mills and 40 suppliers numbering in the hundreds of individual members are active participants in the Foundation. This year $9,000 was set up for scholarships alone, 10 of which are for $600 apiece. A new $225,000 two-story building housing laboratories and the physical plant for the school was being completed in February.

NO SNAP COURSE—Because its objective is to turn out top qualified men for future supervisory and managerial positions, North Carolina's curriculum is a tough one. It is rated as harder than the forestry course and a peg or two easier than chemical engineering. Last year, the school's only two seniors succumbed to its high standards and flunked out. To date, 25 have fallen along the way, only two have graduated.

One of the first two graduates, Joseph E. McCaffrey, Jr., is the son of the vice president in charge of Southern Kraft's woodlands and is now in the lab at I. P.'s Georgetown mill. (The other is in training as a jet pilot in the Air Force.) Now, with its largest freshman class to date and a promising junior class, it is felt that the school is getting up steam. The new lab will add even more incentive and give the students a place to apply practically what they learn.

Pulp and paper courses begin in the sophomore year. The course is 27% specialized pulp and paper courses alone. Another 47% is in engineering, science, chemistry and related subjects. Students study such things as plant inspections, paper coloring, testing and converting, mill management, cellulose chemistry, pulp and paper mill equipment, forestry problems and heat and power fundamentals. In-state student costs, including room, board and laundry, run about $600 a semester, while out-of-staters pay about $1,000 (tuition is $425 higher for non-North Carolinians.)

WHAT OF THE FUTURE?—Throughout the paper industry today, the philosophy seems to be "look to the future." The Stanford Research Institute report indicates the industry will double in size within 10 years. Many Southern companies, on their own planning, confirm this. Industry leaders are already saying this is a conservative estimate. The South manufactures 60% of the pulp and 50% of the paper made in the U.S. Every month there are new reports of further expansion. More trained men will be needed.

RIGHT HAND MAN at North Carolina State's pulp and paper dept. is ASST. PROF. R. G. HUTCHINGS, a graduate of N. Y. State College of Forestry.

FOUNDATION MEMBERS – Mill members of the Pulp and Paper Foundation, Inc., are: Brunswick, Buckeye, Camp, Champion, Chesapeake Corp. of Va., Continental Can, Ecusta Paper, Gardner Board & Carton, Gaylord Container, Halifax Paper Co., International Paper, Mead Corp., North Carolina Pulp, Riegel Carolina, Scott Paper, Southern Paperboard, Union Bag & Paper, West Virginia and Robert Gair.

Associate members include: American Cyanamid, Appleton Wire Works, Asten-Hill, Bauer Bros., Beloit Iron Works, Cameron Machine, Clark & Vicario, Columbia-Southern Chemical, Corn Products, Dixie Cup, Glidden, Hercules Powder, J. M. Huber, F. C. Hyuck, Improved Paper Machinery, E. D. Jones & Sons, Samuel Langston, Lockport Felt, Charles T. Main, Morningstar, Nicol, National Aniline, Nopco Chemical, Olin-Mathieson, Penick & Ford, Raybestos-Manhatten, J. O. Ross Engineering, Rotareaed, Solvay Process, Sutherland Refiner, A. E. Staley, Stebbins Eng. & Mfg., Combustion Engineering, Cheney-Bigelow, Kelco, Ebasco Services, Williams-Gray and Wyandotte Chemical.

Leaders Named For Engineering Conference

The 11th Annual Engineering Conference of TAPPI in Boston, Oct. 8-9-10-11, will be chairmanned by James M. McAlear, Mason-Neilan Div., Worthington Corp., Norwood, Mass.; who is now in Europe. Secretary of the event is Harold G. Ingraham, Chas. T. Main, Inc.; treasurer, William Pittam, Stone & Webster; hospitality chairman, Angus J. Gardner, Rice-Barton Corp.; registration, Leonard J. Edel, Link-Belt Co.; printing, Elliott B. Knowlton, Norton Co.; publicity, John F. O'Brien, Paper Mill News; advisory, Norman I. Bearse, Champion International Co.; plant tours, Kent W. Smith, Improved Machinery, Inc.

Allis-Chalmers Board Meets In Atlanta

Allis-Chalmers Mfg. Co.'s directors were attracted as a body to the Southeast for the first time last month to inspect the firm's Southeast district and regional offices in Atlanta.

Hosts for the occasion were D. S. Kerr, manager of the Southeastern region; C. F. O'Riordan, head of the Atlanta district office, and E. H. Polzin, manager of the tractor branch in Atlanta.

Robert S. Stevenson, president of the company, led the group of officers and directors in a regular board meeting, followed by a luncheon for local and state government and business leaders. Mr. Stevenson paid tribute to the rapid industrial growth of the Southeast.

Among directors who attended the meeting were Ernst Mahler, Neenah, Wis., director of Kimberly-Clark Corp. and chairman of board of Institute of Paper Chemistry; W. C. Buchanan, Peoria, Ill., vice president of Babcock & Wilcox Co.; W. E. Buchanan, president and treasurer of Appleton Wire Works, Inc.; J. D. Cunningham, Chicago, president of Republic Flow Meters Co., and Hugh Comer, Sylacauga, Ala., chairman of the board of Avondale Mills.

W. G. Scholl, executive vice president and J. L. Singleton, vice president in charge of the industries group of Allis-Chalmers, also attended the meeting.

Gearhart Meeting in May

Joint meeting of Pacific TAPPI Section and Pacific Supts. Division is scheduled for Gearhart, Ore., Gearhart Hotel, May 17-19. Co-chairmen: Dr. John J. McEwen, Pulp Div., Weyerhaeuser, for TAPPI, and Max A. Bailey, Westminster Paper Co., for the Supts.

A special feature will be a visit on May 18 to Crown Z Clatsop tree farm.

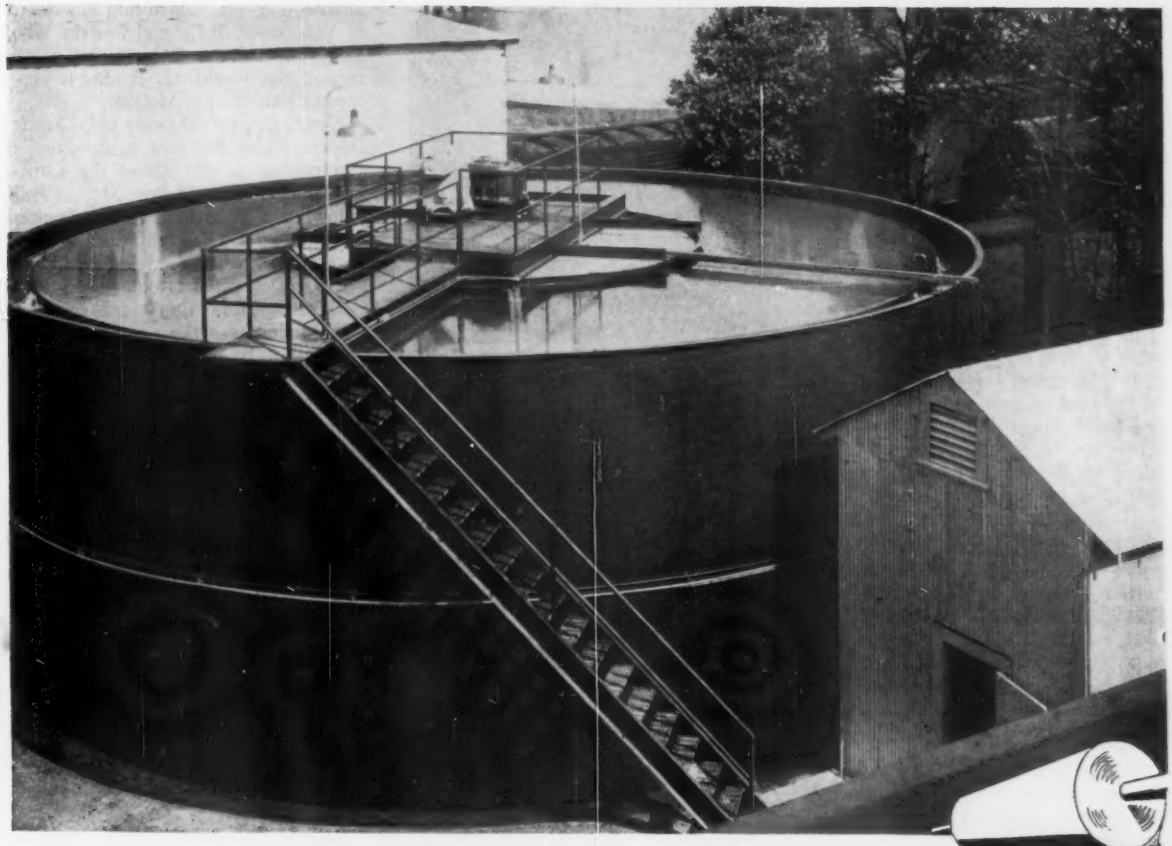
Technical program co-chairmen are Jack V. Savage, Crown Z, and Dr. Ben T. Briggs, Rayonier.

Leading Advertisers

Printers' Ink publishes the 100 top advertisers for 1955 in magazines, newspapers and networks. Only paper companies in the list—Scott, which ranks 35th, and International Cellucotton (Kimberly-Clark), 44th.

Leaders are General Motors ($44 million), Procter & Gamble ($42 million) and General Foods ($30 million), Chrysler ($28 million) and Colgate-Palmolive ($25 million). Scott spent $5,194,408, Int. Cellucotton, $4,364,365.

NOW! Soften water without chemical cost with the ACCELATOR® Treating Plant



Developed and pioneered by INFILCO, the "ACCELATOR" plant makes possible the selective precipitation and removal of calcium bicarbonate from well waters without precipitating a significant amount of magnesium hardness. The sludge produced is practically pure calcium carbonate which may be used as such for neutralizing acid wastes, or reburned to provide quicklime for other plant processes. Since this "ACCELATOR" plant produces calcium carbonate sludge in an amount nearly twice that of the lime required for softening, reuse of sludge, in effect, results in *softener operation without chemical cost.*

The "ACCELATOR" treating plant offers you other advantages, too. First, speeding of chemical reactions and solids separation results in small space requirements and lowered construction costs for either well water or surface water treatment.

Second, it improves your product by improving water quality through clarification, color and iron removal or through partial or complete softening...as may be required...in any capacity.

It will pay you to investigate the possibilities of the "ACCELATOR" plant for treating your water. *Write today for detailed information.*

Typical Pulp and Paper Companies using the "ACCELATOR" treating plant include:

Brunswick Pulp & Paper Co. • International Paper Co. • National Container Corp. • Northwest Paper Co. • North Carolina Pulp Co. • Potlatch Forests • Rayonier, Inc. • St. Mary's Kraft Corp. Scott Paper Co., and many others.

INFILCO

The one company offering equipment for *all* types of water and waste treatment—coagulation, precipitation, sedimentation, filtration, flotation, aeration, ion exchange and biological processes.

INFILCO INC. 920 South Campbell Ave., Tucson, Arizona
Field offices in principal cities in North America 5540

Ed Slaughter—Young Man Who Flies Through the Air

What makes a good businessman? Perseverance, know-how, a little luck, maybe? Well, one of the industry's youngest new suppliers has all these traits—in spades.

Back in 1939, a young fellow from Charlotte, N. C., named Edwin F. Slaughter "washed out" of the Army Air Corps Aviation Cadets. This is not surprising. When a fledgling pilot lined up for inspection he was told to shake hands with the cadet next to him. His instructor's remarks were: "Wish him luck. One of the two of you won't be here on graduation day." This was more than true since 60% were washed out.

Ed Slaughter's reaction is a clue to the kind of man he is. He kept flying in off hours and two years later, when the U. S. was at war, he was hired by the Air Corps as a civilian instructor for Aviation Cadets.

He flew for three years with beginning pilots and never got a scratch. Then in 1952, while taking off from Charlotte airport in his own plane, his fuel gauge ruptured and he splattered into a field. The plane, which cost $3,000, was sold for $250. Ed walked away with scratches. He still flies over the spot everytime he takes off in his new plane. Doesn't bother him a bit.

COVERS SOUTHWEST BY AIR—Ed flies his territory—the entire Southwest—in a green and silver Cessna 140. He can cover, in two weeks, ground it would take him six to cross by car. The four weeks he saves goes back in the hopper. He just gets in three times as much travel.

The Slaughter Machinery Co., which he now owns, was founded by Ed's father, Gibbons G. Slaughter, who had been a purchasing agent for 54 different textile mills. In 1941, when Ed was teaching youngsters to fly, brother Phil was managing a defense plant and brother Fred was in the Navy, the name was changed from Gibbons G. Slaughter Co. to the name it has today.

BROTHERS JOINED – Phil – who played left end on the famous Georgia Tech team of 1933—came to the company as sales engineer in 1955 after serving 8 years as supt. of a textile mill. Fred took over as Southeast sales rep in 1947. He had been with Procter & Gamble; now has offices in Marietta, Ga.

A FAMILY AFFAIR—ED SLAUGHTER and brother PHIL (right) have little time to relax. FRED is third brother.

ED SLAUGHTER crawls into his speedy Cessna for mile-a-minute business trip.

The company has been in the paper industry since 1949 when Mt. Hope Machinery Co., began making expander rolls for paper machines. In 1954 Poirier Controls became part of the Slaughter line and so did Holyoke Machine Co., makers of calenders and embossing rolls. Atlas electrical device and McBeth color matching lamps and meters have been in their line for 17 years. In October, Slaughter became an outlet for the McClusky Wire Co., selling its wires.

Ed lives in a rambling frame house in Charlotte's outskirts with his wife and three children. Mrs. Slaughter confides that Ed is a bit impetuous. Recently he spotted a 7 ft. high, 8 ft. long antique cabinet in New Orleans. Mrs. S. shook her head, insisting it couldn't be shipped but Ed had it shipped in 9 pieces. Today it covers an entire wall of their dining room.

*Trademark

Williamson, Youthful Manager, Joins Sandwell Firm

Dan Williamson, who has been one of the youngest mill managers in the industry, during a term of service with the Port Mellon, B.C., mill of Canadian Forest Products, has returned to Sandwell & Co., consulting engineers of Vancouver, B.C., and Seattle, who have planned and built mills all around the world. C. B. Davis succeeded him at Port Mellon.

Now just past 30 years old, Dan is modest about his own achievements and prefers to talk about the transformation of the old Port Mellon mill following a $7 million modernization program he carried out during a 2-year period (described in PULP & PAPER Oct. 1953 issue).

"Most people don't realize that Port Mellon was the site of the first pulp mill to be built in British Columbia," says Mr. Williamson. "Away back in 1908, long before I was born, British Canadian Wood Pulp & Paper Co. started its short-lived operations, producing 20 tons of soda pulp daily. Today, they're producing on the same site more than 200 tons of sulfate pulp daily."

Dan's rise in the industry has been rapid. After graduating in engineering from the University of British Columbia he went to work at Prince Rupert, B.C., during construction of Columbia Cellulose Co., and from there to Vancouver to join Sandwell & Co., consulting engineers. When the Sandwell organization was given the job of organizing the modernization of Port Mellon, Dan went there as engineer.

Executives of Canadian Forest Products, Ltd., parent company of Howe Sound, noting his administrative talents, persuaded him to stay as manager.

And so he became manager of a 200-ton mill at 29.

George J. Maye Dies in Crash

George J. Maye, 61, 1419 S. Outagamie St., Appleton, Wis., vice president of Appleton Wire Works, was killed almost instantly Apr. 8 in an automobile accident. He and his wife were driving home just south of Sarasota from vacation. His wife was not seriously injured.

Mr. Maye, previously connected with Hooker Electrochemical Co., has been affiliated with Appleton Wire Works since 1928 and represented them in the Midwest and South; in recent years mostly in the South where he was well known. He had an important role in planning their new plant at Montgomery, Ala., and expanded business in the south.

Improved water resistance with

SCRIPTITE* 52

This new Monsanto polyelectrolyte resin (supplied as a free-flowing fine powder) is water insoluble – but dissolves easily in aqueous ammonia. The resulting water solution can be applied to paper or paperboard by tub, size press or calender.

Scriptite 52 imparts exceptional water resistance as well as wet and dry strength. These improved properties are retained even under harsh, end-use conditions of lower pH and higher temperatures, which break down conventional internal sizing.

Suggested applications: As a surface sizing of paper to give dry and wet strength and water resistance for alkaline filled papers . . . and in combination with formaldehyde to give water resistance to boxboard and to jute liner.

For laboratory sample and data sheets, write to Monsanto Chemical Company, Plastics Division, Room 919, Springfield 2, Mass.

MONSANTO

*SCRIPTITE: REG. U. S. PAT. OFF.

The Monsanto Line of Paper Resins also includes

SCRIPTITE 54 . . . *for outstanding water resistance and both wet and dry rub resistance.*

SCRIPTITE 50 . . . *for unsurpassed printability and improved surface characteristics on boxboard.*

SCRIPTITE 40 . . . *a urea wet-strength resin.*

SCRIPTITE 33 . . . *a melamine wet-strength resin.*

Kraft Expansion at Longview Fibre

Biggest alkaline pulp and paper operation in Far West will exceed 1,000 tons a day when new units start up

● Longview Fibre Co., while in the throes of increasing daily production by 250 tons through addition of another machine at its Longview, Wash., plant, has announced placing an order for the industry's largest recovery furnace. Rated kraft board and paper capacity at Longview Fibre is now 780 tons per day and the new machine will bring it easily over the 1,000 tons a day mark.

This 2 million lbs. dry-solids-per-day recovery unit, to be built by Combustion Engineering, Inc., will be in operation subsequent to mid-1957. After that, the older, less efficient units will be taken off the line. In addition to recovering chemicals from burning kraft black liquor equivalent to 575 tons of pulp per day, it will provide steam in excess of 300,000 lbs. per hour. Specifications call for designed pressure of 975 psig, at 750°F., with 850 psig operating pressure at superheater outlet. The furnace gases will pass through a 3-unit vertical wet bottom electrical precipitator supplied by Research-Cottrell, Inc.

Installation of No. 7 machine and associated expansion of other plant facilities is "progressing satisfactorily," according to Vice Pres.-Res. Mgr. R. S. Wertheimer. The new machine is expected to inaugurate production in October, about a year after construction began on the 480-ft. long by 70 ft. wide machine room building. Engineering, planning and supervision of installation is carried on by company personnel under direct supervision of Chief Engr. Virgil M. Sutherling.

The different component sections of this Fourdrinier machine, according to Mr. Sutherling, have been ordered from various machinery manufacturers and will be assembled as a completely integrated unit. He said this makes it possible to get the machine in operation from nine months to a year earlier than if purchased from one builder.

General Supt. W. W. Clarke says possible future production speeds will range up to 2,000 fpm with the subsequent addition of vacuum transfer equipment. Initial design range is 300 to 1,500 fpm for producing regular Longfibre grades ranging from 25-lb. paper (25x36-500) to 47 lb. (per M sq. ft.) board.

ROBERT S. WERTHEIMER (left), Vice Pres. and Res. Mgr., Longview Fibre Co., whose late father was a past Pres. of Thilmany P & P, announces 250 tons per day expansion. **VIRGIL M. SUTHERLING** (right), Chief Engineer, supervised engineering and planning.

WILL HAVE 14 DIGESTERS—To provide a corresponding increase in pulp production, 3 new American Pipe & Construction Co. digesters are to be added—making an installed total of 14, a new Oliver washing system, 2 Cowan screens and a new Buffalo Vac 400-ton evaporator. These 3 digesters, carbon brick lined by Stebbins, will each blow approximately 12 tons.

A power plant expansion program to keep pace with production enlargement includes a new oil-fired Combustion Engineering boiler rated at 850 psi and producing 350,000 pph steam, and a 20,000 kw General Electric turbogenerator.

A completely new stock preparation system for the new machine is on order. This includes two 440-series Bauer refiners, a No. 5 Miami jordan, No. 3 Claflin refiner for machine broke and a 90-in. disk Shartle hydropulper which will be placed under calender stacks and reel for handling dry end broke.

FEATURES OF WET END—No. 7 machine is to have a standard Rice Barton removable Fourdrinier, the wire 180-in. wide and 126-ft. long. Two Valley headboxes are to be used —an open primary and closed secondary.

The Fourdrinier section includes 6 oscillating suction boxes, 2 Rotabelts made by W. P. Evans, 25 table rolls, one 40-in. diameter suction couch roll, 2 30-in. diameter suction presses and a 30-in. smoothing press. Beloit supplied the suction rolls.

Auxiliary equipment at wet end includes 620-series Bauer cleaners sufficient for primary, secondary and tertiary stock cleaners at the machine.

DRYERS IN THREE SECTIONS—A Rice Barton creping press, of 2 30-in. top rolls and one 60-in. bottom roll, will separate the first and second dryer sections. This creping press is to serve as a breaker stack and will be used for water marking as well as for conventional creping.

A Rice Barton size press, with 2 30-in. rolls and a size press pan, is to separate the second and third dryer sections.

The three dryer sections call for a total of 45 Bagley & Sewall 60-in. diameter paper-dryer rolls and 10 B&S felt-dryer rolls. The first section consists of 21 dryers, a 36-in. B&S lead-on dryer and 4 felt dryers; the second, 13 dryers and 4 felt dryers; the third, 11 dryers and 2 felt dryers. All dryers are to be two high and equipped with Midwest Fulton drainage system.

A GE steam turbine, with line shaft distribution through Rice Barton differentials to each section, is to be used as prime mover for driving the machine.

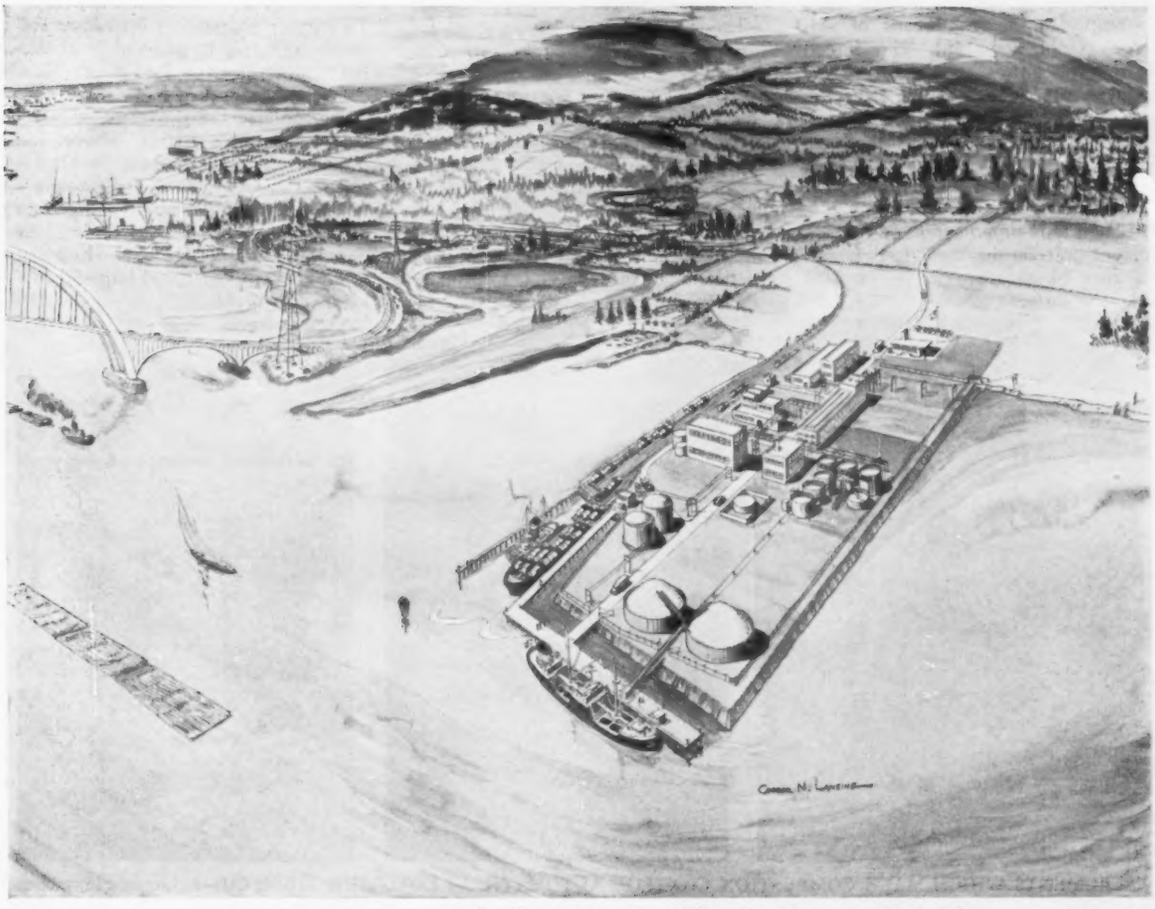
Central instrumentation includes 8 Foxboro magnetic flow meters at wet end, Beckman pH control, and Mason-Neilan moisture control instruments for each dryer section. The machine's closed white water system will include an 8 x 16 Oliver saveall.

Included in the plans for No. 7 machine are 3 DeZurik consistency regulators.

Howard S. Wright Construction Co., Seattle, is contractor for erecting the new building, and installing machinery and equipment.

HOW RECOVERY FURNACE OPERATES—The recovery furnace has been carefully engineered to maintain safe operation and production stability. The plans call for a square fire box with provisions to fire liquor from all four sides. Multiple spouts will be installed on opposite ends of the hearth to deliver smelt to two separate dissolving tanks. The "decanting" furnace bottom permits the withdrawal of smelt from two opposite ends of the hearth.

Tangential secondary air is to be



You'll get time-saving delivery by deep-water chemical barge, as well as swift rail service, from the new Hooker plant. To insure deep-sea dockage, a million yards of gravel and soil were scooped from sea bottom and funneled onto plant site.

Will you get the advantages of this new Hooker chlor-alkali plant in 1957?

One year and $11,000,000 from now the chlorine-caustic soda plant sketched here will be a reality.

It will be Western Canada's first domestic source of chlorine and caustic soda.

Here is what this new Hooker plant will mean to you if your company has a mill or plans one in Western Canada:

You will get faster, cheaper delivery of caustic and chlorine over a shorter, more dependable supply line.

There will be a small but real freight saving.

You will be able to draw more timely, more flexible technical assistance from men who know your industry well.

The new plant, located at North Vancouver, will be part of a distinctly Canadian company, Hooker Chemicals, Ltd.

It is being built by Canadians to serve Canadian industry.

It will use the manufacturing processes and experience of Hooker Electrochemical Company, well known to the pulp and paper industry for fifty years.

If you would like to discuss the new plant and your own needs, or if you would like technical data and assistance on Hooker chlorine and caustic soda, write to Hooker Chemicals, Ltd., 717 Pender St. West, Vancouver 2, B. C.

NOTE: During the construction period at Vancouver, the Hooker plant at Tacoma will continue barge and tank car delivery of chlorine and caustic soda to this area. Another dependable supply of caustic is provided by our storage depot at Vancouver.

—HOOKER ELECTROCHEMICAL COMPANY—
1905 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.
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HOOKER CHEMICALS & PLASTICS

4-599

utilized. The draft fans will be sized to amply supply the needs of this large combustion load. The forced draft fan requires 400 hp input; the induced draft fan, located after the precipitator, requires 1,000 hp input. Both of these fans, and the black liquor pumps serving liquor sprays, will be equipped with hydraulic couplings.

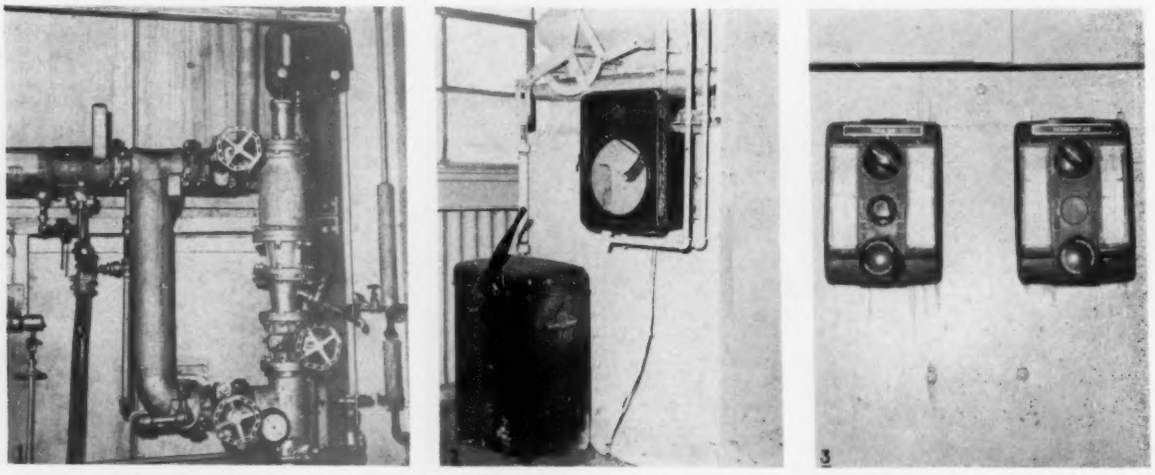
Platen-type superheater and furnace screens precede the "baffleless" boiler. IK soot blowers are to be used to keep the surfaces clean.

HOW FURNACE IS CONTROLLED—The control system is designed for "highly automatic" operation, with both liquor density feed and fuel-air relationship fully controlled automatically. Black liquor feed density will be controlled by dilution or economizer by-pass dumper positioning.

Air to the furnace will be automatically varied to fit the flow of liquor feed as measured by a Foxboro magnetic flow meter. The proportion of tangential secondary air to primary air will also be maintained. Bailey instrumentation will be used generally. To further insure best operation and combustion, an oxygen and combustible recorder is to be used to provide a continuous record.

An unlined 12-ft. diameter steel stack extending 210-ft. above the ground will deliver gases to the atmosphere.

The amount of steel going into metal parts of furnaces, cascades, precipitator and structure of the building totals "upwards of 2,000 tons—50 carloads."



INSTRUMENTS WHICH MAKE COMBUSTION CONTROL AUTOMATIC AT LONGVIEW FIBRE CO.—1. Liquor Flowmeter; 2. Secondary Air Damper Control; 3. Ratio Controllers.

Automation—Applied to Furnace Combustion

By **RUSSELL GRAFF**, Pulp Mill Supt.,
and **JAMES K. GOULD**, Instrument Supervisor,
Longview Fibre Co., Longview, Wash.

• For several decades automatic combustion control has been accepted as essential to efficient boiler operation. In the firing of waste fuels, however, the problem of applying automatic combustion equipment becomes somewhat more complex. This is particularly true in the case of recovery units, where the nature of the fuel combined with the fundamental prerequisite of efficient chemical recovery seemingly discouraged attempts to control the combustion process automatically.

ACKNOWLEDGMENTS—The authors gratefully acknowledge help and advice given by K. E. Atwood, Carl Barnhart and Frank Miehle, of Bailey Meter Co., and E. H. Kennedy of Combustion Engineering, Inc.

In early 1954, the first successful version of automatic combustion control on a recovery unit was completed at Longview Fibre Co., Longview, Wash. The application was made to a Combustion Engineering recovery unit which had been placed in service in Nov., 1953. Designed to burn 1,050,000 lbs. of black liquor solids per day with a steam generation of 164,500 pph, this unit has recently been burning 1,330,000 lbs. of dry solids per day and maintaining excellent results from the combustion control equipment.

Ample instrumentation was included in the initial installation to assure control of liquor levels, liquor density, soot blower operation, and boiler and furnace conditions. The primary and secondary airflows were provided with separate controls, all of which made very little additional equipment necessary for adapting the unit to automatic combustion control.

AUTOMATIC COMBUSTION CONTROL—Shortly after the recovery unit was put into production, it was decided to install sufficient additional instrumentation on an experimental basis to determine whether automatic combustion control on a chemical recovery furnace would be feasible. This was a joint project participated in by Combustion Engineering, Inc., Bailey Meter Co., and Longview Fibre.

The object was to determine whether satisfactory furnace operation could be attained by such control, what benefits, if any, would result, and whether the results would justify the cost of the installation.

There were a number of reasons for deciding to embark on the project.

First, the furnace was new, consequently all of the mechanical equipment was in the best possible condition. Second, it was believed to be the largest unit of its type in the country at that time; consequently, if any benefits were to be obtained they would be in proportion to the size of the unit. Third, the instrumentation originally furnished was more comprehensive than usual, which gave us more to work with. Fourth, addition of this unit gave the mill sufficient furnace capacity to enable tests to be run at various rates, without interfering with total production. And fifth, it was felt by Combustion Engineering and Bailey that the personnel on the mill supervisory staff and in the instrument department would materially contribute to the success of the trial installation.

ORIGINAL INSTRUMENTATION—The original instrumentation included the following: Three-element feedwater control; Total air and secondary air flow recorder; Boiler outlet, evaporator outlet, precipitator outlet, and pre-heated air temperature recorder; Area-type liquor flowmeter with pneumatic transmitter and recorder; Cascade evaporator level controller; Cascade evaporator drive motor recording ammeters, one built as a controller to control dilution liquor addition; Oxygen and combustibles recorder; Primary and secondary liquor heater temperature controllers; Induced draft controller; Green liquor specific gravity controller; Salt cake mix tank level recorder; Weak wash water to dissolving tank flowmeter.

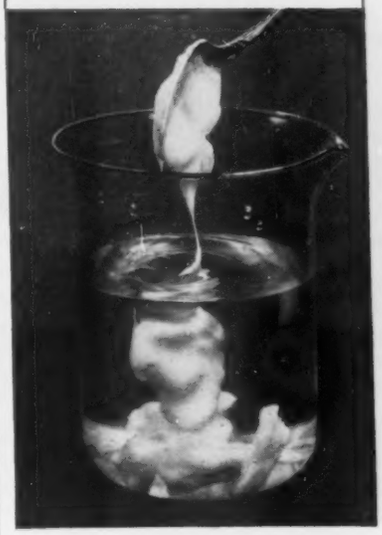
HOW CONTROLS WORK—This list of instruments includes the basic components around which to build an automatic combustion control, namely (1) a liquor flowmeter which was considered to be reliable; (2) means for measuring total air and secondary air; (3) dampers for adjusting total and secondary air; and (4) the oxygen and combustibles recorder. It was only necessary, then, to add air-operated control drives for the total and secondary air dampers, a ratio control for liquor-to-total-air, a ratio control for secondary-to-total-air, and such relays and selector valves as were necessary to link the various components together.

By referring to Fig. 1, it may be seen how the system works. The impulse from the liquor flowmeter through a ratio relay adjusts total air flow in proportion to the liquor flow. Secondary air is controlled in ratio to the total air. Initially, control components were installed in the oxygen recorder, with the intention of biasing the secondary air flow to maintain

KILL FOAM THE EASY WAY...

New G-E silicone Anti-Foam 60 disperses easily—pays for itself

CONVENTIONAL ANTI-FOAM



Conventional high-viscosity silicone anti-foam agents (above) do not disperse readily in water—require vigorous stirring.

NEW G-E ANTI-FOAM 60

Low-viscosity G-E ANTI-FOAM 60, however, can be *poured*—and disperses instantly!

Costly, troublesome foaming in paper-making operations can now be controlled—more easily—with General Electric's new silicone ANTI-FOAM 60. Easy to disperse, this low-viscosity silicone emulsion can be used as supplied, or reduced with water to desired concentrations with *little or no stirring.*

ANTI-FOAM 60 pays for itself by the way it reduces processing time, eliminates costly boil-overs, increases kettle capacity. Incredibly small amounts are needed, for example:

1 PPM in black liquor processing
100 PPM in latex coatings & adhesives
50 PPM in aqueous pigment-binder formulations
5 PPM in paper sizes
60 PPM in beater stock

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GENERAL ELECTRIC COMPANY WATERFORD, N. Y.

Please send me a free sample of G.E.'s new silicone ANTI-FOAM 60.

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constant excess air in the flue gas.

This part of the system was not used, however, when it developed that the excess air was too low to control by. Total air is measured as the pressure drops across the steam-heated air heater. Secondary air is measured by a segmental orifice in the duct to the secondary air ports. Adjustment of liquor flow is manual, by controlling liquor pump speed, and is the only part of the combustion control which the operator needs to touch.

Control components were put into operation one at a time, carefully tested and adjusted for optimum stability, and operated for several days before the next step was attempted. The total air flow control was put into operation first, then the secondary air flow control, each independently. Then the secondary-to-total-air ratio control was brought into play, and finally the liquor-to-total-air ratio control. During the first few weeks of operation, close checks were made on liquor strength, flue gas analysis (by means of Orsat apparatus, as a check on the oxygen and combustibles recorder), steam production, and liquor reduction.

RECORDER FOUND UNNECESSARY—At no time has any malfunction developed in the instrumentation. In fact, it has proven so satisfactory in removing the human element from furnace operation, that the oxygen and combustibles recorder is now felt to be unnecessary for monitoring purposes, and has been removed for use on another recovery furnace.

In connection with this recorder, there was doubt at first that one could be made to work satisfactorily on a furnace where the flue gas carries such a high percentage of solids. However, it was felt that if sufficient care was taken in the installation, plugging of the sample line could be avoided; and by washing and filtering the gas sample, clean gas could be delivered to the analyzer.

A water-washed sample pipe was used, sloped downward into the gas passage. All corrosion-resistant piping, plastic or stainless steel, was used, and the gas sampling pump and washer was likewise of corrosion-resistant material. An electrically-heated filter is interposed between pump and analyzer.

The results have proven that these precautions were well worth the effort. Daily blowing out of the sample line with compressed air suffices to keep it clear, and cleaning of the electrically-heated air filter is only necessary at about three-month intervals.

Other instrumentation on this furnace was unique at the time, and may come into more common use. For example, liquor level in the Cascade evaporator and salt cake mix tank is measured by a steam-purged bubble-type measuring instrument, instead of using an air-purged bubbler or a temperature measuring instrument. Using steam instead of air on the bubbler provides freedom from plugging of the bubble tube.

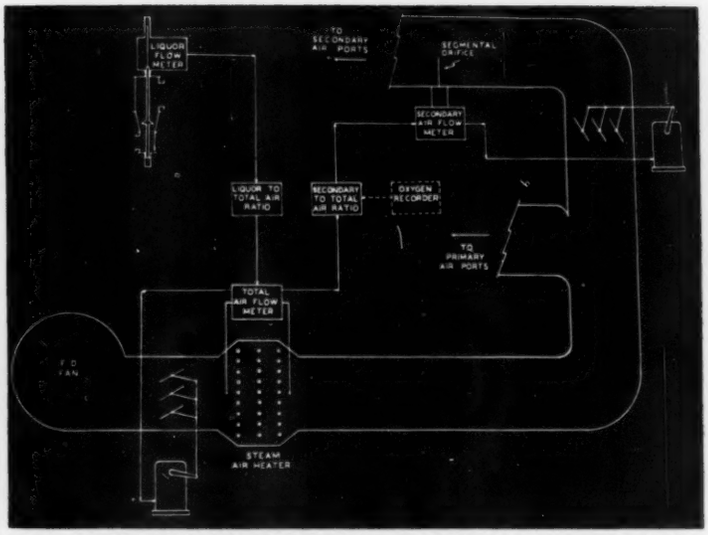


FIG. 1—HOW AUTOMATIC COMBUSTION CONTROL SYSTEM WORKS.

The controlling-recording ammeter on the Cascade evaporator drive motor was an innovation in furnace instrumentation also. Ordinarily, when it is desired to measure motor load for instrument control purposes, it is common practice to use a thermal converter and a potentiometer-type instrument, to measure power in kilowatts. However, from past experience, it was felt that measurement of motor current consumption in amperes would provide a close enough guide to the "consistency" of the liquor in the evaporator.

Consequently, one instrument manufacturer was prevailed upon to install a pneumatic control mechanism in one of their recording ammeters. This is used to regulate addition of weak dilution liquor into the Cascade evaporator, to maintain constant liquor strength. Voltage and power factor are constant enough that measurement of amperage gives close control.

RESULTS ARE EXCELLENT—The use of the air-liquor ratio controller and auxiliary equipment has resulted in an efficient, trouble-free furnace operation. The standard production rate for the past several months has been 1,330,000 lbs. of solids per 24 hours (380 equivalent tons). The unit is very flexible with a normal operating range between 200 and 400 tons; however, some loss in chemical reduction is noted at lower rates.

The success of the system is largely dependent upon a trouble-free operation of the black liquor flowmeter. Since the slightest change in liquor flow is reflected in air flow, it has been necessary to put limits on the air damper setting to prevent a complete shutdown in case of a momentary liquor failure.

Transfers Beget Promotions

O. C. WHEELER (top left) formerly Asst. Sulfite Mill Supt., becomes Tech. Asst. to Paper Mill Supt.-Wrapping Machines at Crown Zellerbach Camas, Wash., succeeding C. T. BEALS, previously promoted to Crown's new Antioch mill in charge of Stock Preparation. R. G. STEWART (top right) Sulfite Mill Shift Foreman, promoted to Asst. Sulfite Mill Supt. and is succeeded by L. A. KELSON (lower left). MORRIS R. RIVERS (lower right) became Supervisor of Steam Power Maintenance and Operations at Camas, replacing L. R. MULLINEAUX who has assumed charge of Steam Power at Antioch, as previously announced.

Move Up at Brown Co.

DR. GEORGE A. DAY, (top left), native of Ontario, graduate of U. of Toronto, and since 1944, Director of Research, now holds newly created position of Tech. Dir., Brown Co., Berlin, N. H. Pres. A. E. H. Fair said Dr. Day will direct new developments, research and quality and process control.

DR. PAUL M. GOODLOE, (top right), Director of Quality and Process Control, will also serve as Asst. Tech. Dir. He is a Kentuckian, attended U. of Kentucky, Kentucky Teachers and John Hopkins.

DOUGLAS H. McMURTRIE, (lower left), who has been Research Associate in Pulp, becomes Director of Research. He is a native of Franklin, Mass., studied at Bowdoin, MIT, and Toulouse, France. B. G. HOOS (lower right), who has been assistant to Mr. McMurtrie, is promoted to Research Associate in Pulp. He graduated from Maine.

Mead Corp. Promotes Three

GEORGE H. SHEETS (left) is promoted to new post of Asst. Div. Mgr., Chillicothe, O. (where O. B. MASON is Mgr.). JOHN R. TAGGERT (middle), is new Prod. Mgr. at Kingsport, Tenn., and C. NORMAN SPENCER (right) succeeded him as Kingsport's Gen. Paper Mill Supt. The promotions were announced by Vice Pres. Geo. H. Pringle, in charge of Mead white paper mills.

Mr. Sheets was Asst. Mgr. at Kingsport, has been with Mead since 1941, graduating from Ohio U. and Institute of Paper Chemistry (ph. d.). He was former Asst. to Mgr. at Chillicothe. Mr. Taggert has been with Mead since 1933 at Chillicothe, Escanaba, Mich., and Kingsport. Mr. Spencer, an Ohio State graduate, also was a Mead engineering trainee.

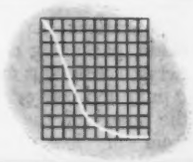
SMS ROTOVALVES

–STILL THE BEST VALVE YOU CAN BUY

Only Rotovalves give you all these features:

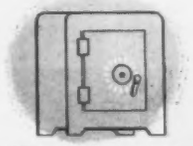
LEAST PRESSURE LOSS
Full line opening means less head loss, lower pumping costs.

EASIEST TO OPERATE
Hydraulic imbalance and mechanical design mean 1 man can close as fast as required. Less power needed in mechanical or electrical operation.



GREATEST INITIAL SHUT-OFF
Rotovalve 55% closed at 25% stroke, and 92% closed at 50% stroke. In comparison, gate valves only 18% closed at 25% stroke and 43% closed at 50% stroke.

MOST CONTROLLED CLOSING TIME
Closing as quickly as one second or as slow as needed. Fast initial closing limits reversal of flow.



MOST POSITIVE CLOSING
Drop-tight, positive closing. Self-purging, monel-to-monel seating. Pressure-tight bolted head, stuffing box, and machined and lapped seats.

In addition to all these features typical of SMS engineering, Rotovalves have a flexibility that makes them suitable for any type of operation, any method of control, or any sort of location.

For detailed information about SMS Rotovalves, Ball or Butterfly Valves, see our local representative or write to the S. Morgan Smith Company, York, Pennsylvania.

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AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED · TORONTO

Chemicals Column

Pulp and paper—3rd biggest consumer of chemicals

"It is a cellulose clothesline on which many chemicals are hung"

POLYETHYLENE—A new line of polyethylene waxes developed by Eastman Chemical Products, Inc., Kingsport, Tenn., is described in a brochure and available on request. This includes Epolene N which exhibits excellent properties for paper coatings, such as high gloss, resistance to water vapor transmission, and grease resistance. The viscosity of Epolene N is such that hot melt coatings can be applied on conventional paper machines at about 250° F. This is especially useful in the coating of certain types of boxboard that have poor surface appearance.

CHLORINE-CAUSTIC SODA—Pennsylvania Salt Mfg. Co. announces expansion of chlor-caustic facilities at Calvert City, Ky., works as part of its $55 million growth program. "The new unit," Pres. William P. Drake states, "will increase chlorine production from 50 to 150 tons a day with accompanying increase of rayon grade caustic soda production. It is anticipated there will also be an increase in caustic potash production."

ELECTROCHEMICALS—Parker S. Dunn, vice pres., Mfg., of American Potash & Chemical Corp., announces appointment of Henry S. Curtis as plant manager of the company's Henderson, Nev., subsidiary. Mr. Curtis comes to American Potash (Nevada) from Monsanto at Texas City where he was administrative assistant to the head of the engineering department. The Nevada company produces electrochemicals such as sodium and potassium chlorate, ammonium and potassium perchlorate and manganese dioxide.

LATEX—Dow Chemical Co., major producer of latex, in demand for coating of offset papers, will produce a wide range of styrene-butadiene latexes at a $1,000,000 plant to be completed this fall in Pittsburg, Calif.

POLYVINYL ACETATE — National Starch is doubling the size of its polyvinyl acetate plant at Meredosia, Ill. It will be completed this late spring.

New Type Motor for Pulp and Paper Use

A new type of motor for industry—described as a "combination of a synchronous and induction machine—"a hybrid with a third machine aspect" —is announced by Allis-Chalmers Mfg. Co.

The new machine is called a Synduction motor. It is aimed especially for continuous processing industries such as pulp and paper.

Developed at A-C's 52-year old Norwood Works, near Cincinnati, the motor is available in ¾ to 40 hp ratings. It is built on standard induction motor frames and enclosures and uses a simple die-cast rotor.

USES SEEN IN THIS INDUSTRY—Ed F. Greiwe, manager of product sales, Norwood Works, told PULP & PAPER the new motor is expected to be especially useful in continuous and high speed processes in this industry, where close control of adjustable speed is required.

"We expect the motor to be used where material is processed in a continuous film or sheet and in printing processes," he said. "First units, synchronized over a wide speed range, were built for synthetic fiber production. Other applications include, or soon will include, packaging machinery, wire drawing, continuous cutting, proportioning units and conveying."

He said the speed of the motors may range from very low speeds to over 10,000 rpm, and it has distinct advantages over squirrel cage motors "for truly constant speed applications."

The motor requires no brushes, slip rings or windings on the rotor, separate source of direct current excitation, or special starting equipment as is the case with standard synchronous motors.

The new machine offers several advantages over existing types of synchronous reluctance motors, and approaches the efficiency and power factor of squirrel-cage units. It starts as an induction motor with a very high locked-rotor torque, accelerates and pulls into synchronism quickly, and runs as a synchronous motor. Having a high (175 to 200%) pull-out torque, the motor remains in synchronism regardless of load or line voltage fluctuations.

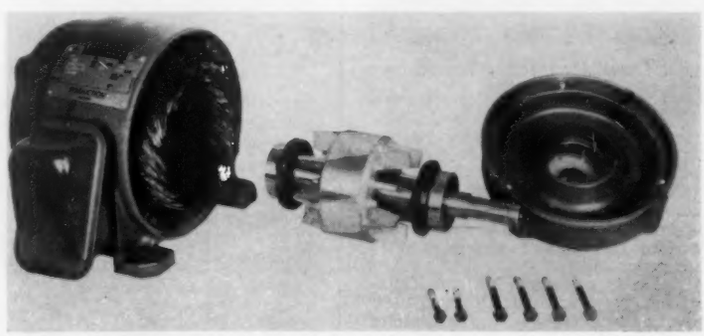
"The selling price," said Mr. Greiwe, "is governed by the type and size of standard squirrel cage frame needed to provide the operating characteristic required, plus a moderate addition to cover the somewhat greater production labor involved."

Norwood had developed an electromechanical drive to supply variable frequency for the new motors.

William Wallace, manager of general products, George Saar, manager of electrical products, and Vern Honsinger, engineer-in-charge of development, were other men from Norwood, who took part, with Vice Pres. J. F. Roberts and other Allis-Chalmers executives, in a press "unveiling" in Chicago.

New Orange Containers Developed by Navy

Because they shudder at the thought of oranges rolling underfoot, crating innovators at the U. S. Navy Supply Center, Oakland, Calif., have restyled orange containers. By using new wire-bound wooden and fibreboard, telescope type containers that won't burst at the seams when caught in a cargo-net squeeze, the supply center hopes to make a considerable cut in the 40 to 50 tons of fresh oranges wasted through breakage every year at Pacific Fleet loading centers.



USEFUL FOR HIGH SPEED PULP-PAPER PROCESS. This is the new Synduction motor, introduced by Allis-Chalmers. Disassembled, picture shows how it uses a simple die cast rotor. Has operating efficiency and power factor approaching that of standard squirrel cage motor, but it is combination of synchronous and induction machines.

Complete Service

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by our own engineering staff

INSTALLATION
by our own construction crews

MAINTENANCE
by our own service specialists

of Corrosion-Resistant

LININGS and TILE TANKS

Designed and installed to meet the exact chemical and physical requirements of each installation, Stebbins linings and tile tanks are industry-famous for their efficiency and economy.

Wherever you are—whatever your corrosion-resistance problem may be—it will pay you to take advantage of Stebbins' unequalled experience and facilities.

Write for Bulletin A-153

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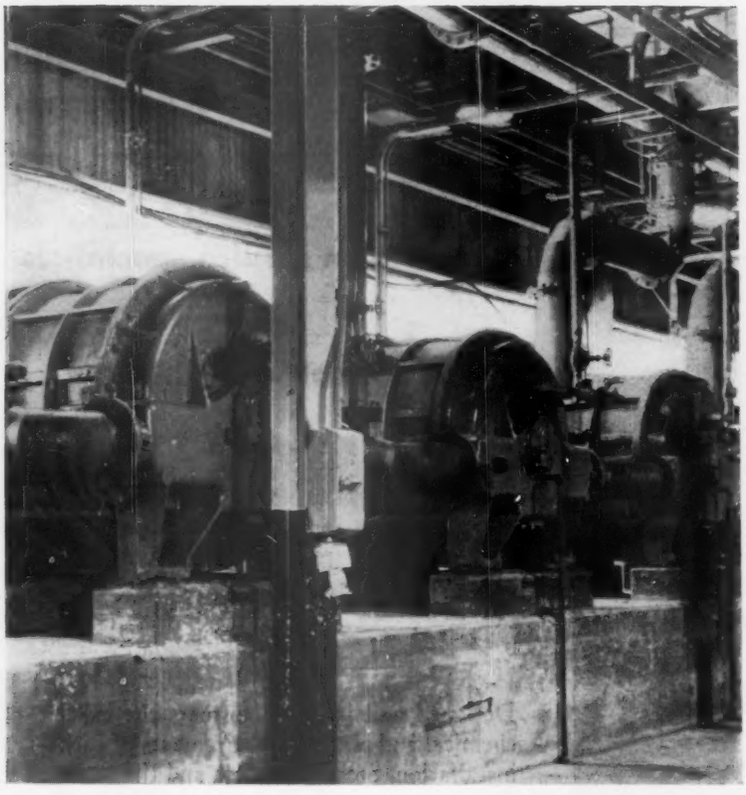
CANADIAN STEBBINS ENGR. & MFG. CO., LTD. – CASTLE BLDG., MONTREAL, CANADA

What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

Every Day a Busy Day for Mrs. Berney

• Employers and employes should always give each other honest information—never slanted. Even when news is bad, the truth should be told—before it becomes a rumor.

This philosophy is basic with Mrs. Vera Whitney Berney, who for 14 years has been personnel supervisor for 400 to 500 women employes of the Crown Zellerbach mill at Camas, Wash.

It is much worse for employes to receive bad news by the rumor route. She preaches that employe and employer are in business together—if there's a slump, if costs are too high, if quality is down, they work together to meet competition.

This was the theme of her recent Bolton essay award, one of the top winners nationally. She wrote that better communications "point up the worth of the individual at work, at home, in the community. They give him peace of mind, help him do a better job, unite various groups within the organization. They make the company a friend in every employe and a good neighbor in the community."

RAISED 3 SONS ALONE—Originally from the Kansas and Montana grasslands, Mrs. Berney reared her three sons alone, from the time they were 3, 4 and 6 years old. Charles, the eldest, graduated from Whitman College, Army language school, with honors, and is assigned overseas; Donald graduated from Willamette University last June, winning a scholarship to American University, and Bruce completed 2 years at College of Puget Sound and qualified as a Methodist preacher and missionary teacher.

When the sons went to college,

EVERYONE'S PROBLEM IS HER PROBLEM. MRS. VERA WHITNEY BERNEY, for 14 years Personnel Supervisor for over 400 women employees at Camas. She also administers hiring tests to all men and women employes.

friends thought Mrs. Berney would sell her home, move into an apartment. Instead she bought a bigger home, moved in an elderly crippled aunt, and after her mother's death in 1954 in Walla Walla, her 81-year-old father, Charles Whitney, also moved in.

SOLVES EVERYONE'S PROBLEM—She knows all the 2,800 men and women employed at Camas. She has interviewed about 30,000 for jobs. She administers the standardized testing program for hiring and placement of both men and women. She seemingly solves everyone's problem.

In just an hour or so—one of her typical days—she helped a woman get a baby-sitter; wrote an order for a pay advance for another; advised a woman on getting a mill job for her husband; heard a school teacher plea for a higher paying mill job; heard a man request his wife be fired, so she would stay home and take care of the kids; heard another man plea for a job for his wife so they could get the children's teeth fixed. She heard a woman request a job near her husband to stop his flirting; another, who wanted a transfer to a job away from her husband.

A Korean student, getting industrial training at the mill, asked help in finding a place to live. Mrs. Berney invited him to live at her house.

Thus, her days are filled. But she finds time to travel widely to address business, church, labor and other meetings in many cities. She even won another essay top prize—this one was on what her church means to her, in a Methodist competition.

In Canadian News

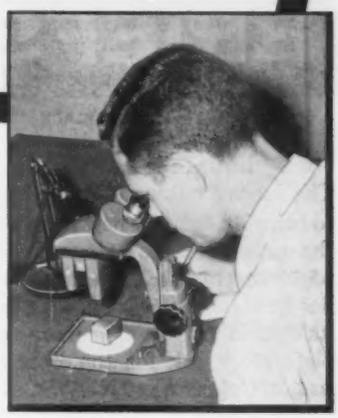
THOMAS HUGHES (left), formerly with Rayonier, has been named Assistant to the mill manager at Columbia Cellulose Co.'s operations in Prince Rupert, B.C.

W. T. BUTLER (right) has joined Bauer Bros. Co., Springfield, O., as Vice Pres. and Gen. Mgr. of Bauer's Canadian plant in Brantford, Ont. He was formerly Adminstrative Asst. to Director of Research at Abitibi Power & Paper Co. and was directly involved in their pioneer program of development of high yield sulfite pulping. He was also Chief Chemist at Howard Smith, Beauharnois.

RESEARCH AT WORK FOR YOU

CHIEF SANDUSKY

FERROUS and NON-FERROUS CENTRIFUGAL CASTINGS FOR ROLL SHELLS, COVERS, and LINERS



Many concerns are discovering strong, uniform, closely grained Sandusky centrifugal castings are essential to applications requiring maximum strength and extreme resistance to heat, corrosion, and abrasion. Chief Sandusky continuous research is ever expanding the range of these uses.

This versatility and quality results from constant research and testing in our modern firm and independent laboratories. Vast foundry and field experience also assists in supplying the proper castings for you.

Excellent machining facilities for drilling, milling, turning and boring are available.

Call or write Sandusky, the leading source of ferrous and non-ferrous centrifugal castings. ALWAYS SPECIFY CHIEF SANDUSKY.

Chief SANDUSKY CENTRIFUGAL CASTINGS

FERROUS AND NON-FERROUS

SANDUSKY FOUNDRY AND MACHINE CO., Sandusky, Ohio

COOPER ALLOY

CORPORATION BRIEFS

• Edited by GEORGE BLACK

DOUBLE-D REFINER

The Jones Double-D Refiner is said to bring an entirely new concept to the preparation of stock for the paper machine. Key to the design lies in the twin refining area with its double discs. For a more complete story ask for the February issue of Cooper Alloy NEWSCAST.

WHAT'S IN A TRADEMARK

Behind the Cooper Alloy trademark, cast or stamped into our stainless steel fittings, stands more than a quarter century of experience and the most complete production facilities in the industry. When you specify Cooper Alloy fittings you can be sure that every step from design to shipment is under the supervision of specialists. Look for the CA trademark before you buy . . . it is a sign of quality, experience and reliability.

DESIGN FEATURES FEATURED

Design features that have made the Cooper Alloy stainless steel valve the preferred valve for chemical processing are presented in the current issue of NEWSCAST. Diagrams and text combine to make a thorough presentation. Additional copies available on request.

NEW PUMP IN DEMAND

The new line of stainless steel rotary pumps announced by our Vanton Pump Division has taken the field by storm because it is the one (and only) pump of its kind without stuffing boxes or shaft seals. Bulletin VP561 gives the facts. Write for it today.

COOPER ALLOY
CORPORATION • HILLSIDE, N.J.

PULP & PAPER NEWS FROM CANADA

DOUBLE ClO_2 BLEACHING FOR DRYDEN—Going to two stages of chlorine dioxide bleaching and using the Mathieson Chemical Corp. process, in a new 5-stage bleach plant, will feature additions at Dryden Paper Co's groundwood and unbleached sulfate mill, Dryden, Ont., as part of a $11,600,000 program doubling production to 142,000 tons by 1957. A new woodroom, new sawmill, new storage area for wood and bark disposal site, practically eliminating the bark problem in the river, are other features.

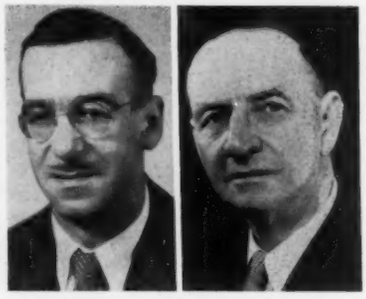
E. G. Macdonald, chief engineer; Alex Glen, in charge of field work; P. Daiter, chief draftsman; C. R. Reany, electrical engineer; W. Willain, engineer; P. Stewart, draftsman; F. Reid, draftsman, and Don Horn, surveyor, are on the project. William Nygren, plant engineer, is in charge of preliminary work preparing sites, assisted by Swen Lindquist and Oscar Kurz.

A new continuous Dorr causticizing plant is being installed. A continuous washing system will handle increased tonnage. Screening will also be done in the washer building as well as operation of 600 Bauer Cleaners. Bleaching stages are chlorine, caustic, chlorine dioxide, caustic and second chlorine dioxide. The chemical plant houses Mathieson generators as well as metering for other chemicals.

No. 1 machine will be converted from a two cylinder unit to a vacuum forming machine equipped with Kamyr presses and extra dryers, electric drive hoods, etc. Structural steel is supplied by Dominion Bridge Co.

NEW FEATURES ON NEW MACHINE—A 60-ton Black-Clawson board machine, ordered by Sidney Roofing & Paper Co. for its new board mill, will have an unusual dryer arrangement combining both double deck horizontal dryers and vertical stock dryers. The stack dryer framing will be mounted on the basement floor level to provide for future dryer expansion by addition of new dryers on existing frames below the machine room floor level. The 42 dryers can be expanded to 78 without disturbing equipment following the dryer section.

PAPER FIRM IN MINING BUSINESS—The Chicago Tribune-N.Y. News-owned Quebec North Shore Paper Co. will be a partner with British Aluminium, Ltd. in a mining development near the Baie Comeau mill. A new Canadian company is being organized—Canadian British Aluminum. The aluminum and newsprint companies also are teaming up in a new Manicouagan Power Co. in which Quebec North Shore will have majority interest. British Aluminium retains principal interest in the production of aluminum, while Quebec North Shore holds its key interest in the field of waterpower. A smelter will be at Baie Comeau.



Columbia Cellulose Appointment

EUGENE BARTLETT (left) has been appointed Plant Engineer for Columbia Cellulose Co. at Prince Rupert, B.C., and JOHN H. NIXON (right) is Superintendent of Maintenance Operations. Mr. Bartlett was formerly with B.C. Pulp & Paper Co. (now Alaska Pine & Cellulose) as asst. mill manager at Port Alice. Mr. Nixon has had 34 years of experience in his field, most of that time with Abitibi Power & Paper Co.

RICHMOND PROGRESSES WITH SEMICHEMICAL NEWSPRINT—What happens to a newsprint mill without sulfite pulp facilities and accessible softwood? Does it shut down or find an alternative process? In the case of Richmond Pulp & Paper Co.'s mill at Bromptonville, Quebec, the answer is "yes" to both questions. When owned by Brompton Pulp & Paper, the management decided that costs were too high; it would be too costly to install a sulfite unit and buying sulfite pulp on the open market would be prohibitive. The mill was closed.

But soon after Kruger Paper Co. acquired the mill in 1950 and renamed the operating company Richmond Pulp & Paper Co., a new approach was made. It was decided that the company's best means of staying in business would be to change the mix—utilize hardwood as well as softwood, utilizing chemical hardwood

pulp to toughen its newsprint to a greater extent than any other mill in Canada. It was a gamble, but it has paid off.

They found an unrecognized asset, an extensive stand of hardwood, mainly poplar, close to the mill. This wood cost about 55% as much as softwood shipped in from comparatively distant points—$19 a cord compared with $33.50. It was discovered that hardwood semi-chemical pulp mixed with groundwood pulp could reduce the softwood sulfite content and still produce a high quality newsprint.

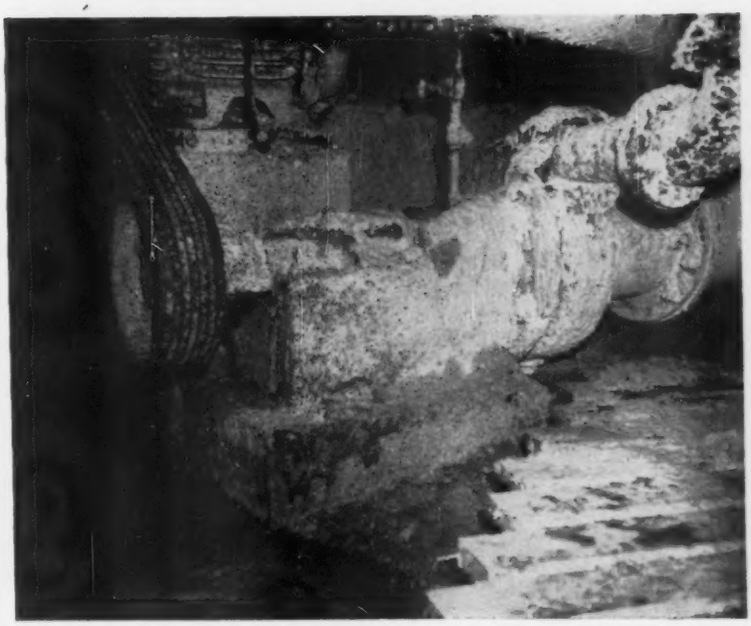
Richmond installed a new Dominion Engineering Co. paper machine with a capacity of 30,000 tons a year to augment production from an older unit. The company aimed at 75,000 tons a year.

Richmond has been producing newsprint from a mix containing about 10% hardwood semi-chemical pulp, 5% spruce sulfite and 85% spruce groundwood. A new digester is to increase semi-chemical pulp content of its newsprint to 20% and reduce sulfite content to an extent never done before. Richmond can produce its semi-chemical hardwood pulp for about $70 a ton with 20% sulfite, the saving works out at about $6 to $6.50 a ton. Richmond's own unit for producing the cooking liquor is expected to reduce the semi-chemical cost by another $8 to $10 per ton of pulp, or about $2 a ton of newsprint.

DIGESTERS AND STEEL WORK FOR M & B—Contracts for 2,000 tons of structural steelwork for the $58,000,000 expansion by MacMillan & Bloedel in Port Alberni, B.C., have been awarded to Dominion Bridge Co. Allan S. Gentles, vice president and manager of Dominion's Pacific division, says his company is fabricating and erecting the structural steel framework will house the pulp warehouse, newsprint and paperboard machine rooms, recovery building and wood preparation. Dominion Bridge will fabricate two 13-ft. 3 in. inside diameter sulfate digesters, each weighing 105 tons and believed the largest for a Canadian kraft mill, at its new heavy plate assembly shop at Burnaby, B.C., from Lukens steel plate.

TO ACQUIRE CANADIAN CELANESE — Reports that Canadian Chemical & Cellulose Ltd., subsidiary of Celanese Corp. of America, plans to acquire Canadian Celanese have been revived by the company's proposal to revamp its capital structure.

Canadian Celanese, although a competitor in the textile field, has a close link with the Dreyfus interests who also hold stock in Celanese Corp. of America.



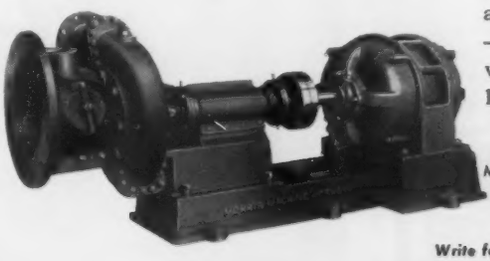
Here's what stock pump

Dependability looks like!

This is a Morris Stock Pump in the basement of a well-known paper mill. As you can see, the accumulation of paper waste covering it hasn't been disturbed — not once in the last 7 years. No need to. Day after day, this 4-inch Morris ST-P has delivered 150 tons of 3½% consistency paper stock to the head box against a 65-foot total dynamic head—without breakdown. That's *dependability!*

More Output With Less Power and Maintenance

Owners are usually amazed at the sustained efficiency and the lower power, labor and maintenance costs of the Morris ST-P Stock Pump. The accurate balance of all rotating parts—the smooth, vibration-free operation—and the outstanding wearability of all parts—give maximum value for the dollars invested.



Morris ST-P Stock Pump

Write for Bulletin 176.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS *Centrifugal Pumps*

EQUIPMENT AND SUPPLY NEWS

INTERNATIONAL HARVESTER has two new folders, "Versatility Unlimited" (CR-405-F) and "Four-Machine Utility" (CR-406), which detail operating features of the new International Drott Four-In-One skid shovels. Ask for them from International's Consumer Relations Dept., 180 N. Michigan, Chicago, Ill.

AMERICAN TRACTOR CORP. shows how and where its 30 to 60 hp Terra-Trac tractors fit into construction; available from the company, Churubusco (Ft. Wayne), Ind.

JOHN DEERE's Industrial Division, Moline, Ill., will send you their new booklet on industrial tractors and equipment if you write and ask for it.

BUCYRUS-ERIE CO. has appointed Burnup Equipment Co., Independence, Mo., as Hydrocrane distributor in Eastern Kansas and Western Missouri.

RAYDYNE CORP. has elected a new President, Vincent J. Getzendanner, who announced an expansion program to broaden application of balancing equipment in large industrial equipment plants. "We've just started to scratch the surface of this field (dynamic unbalance) which can mean considerable savings to manufacturers," said Mr. Getzendanner.

MORDEN MACHINES CO. has a new brochure discussing theory of stock preparation: the Morden System; Morden "Slush-Maker" for pulping; Morden "Stock-Maker" for beating and "Stuff-Maker" for jordaning.

GENERAL ELECTRIC has developed a hand-held thickness gauge, which operates on a magnetic principle and requires no power. Typical materials which can be measured are paint coatings, platings, enamels and sheet materials. GE also has a new catalog on its heaters and heating devices, Bulletin GEC-1005C, containing application index, calculating data, prices, etc. GE's bulletin 1204 gives general information on industrial uses of germanium rectifiers.

CUNO ENGINEERING CORP. has a newly engineered, high capacity, simplified filter for diesel fuel and lube, pipelines, process liquids, water, gasoline and aviation fuels; described in catalog MK-170, available from Cuno at Meriden, Conn.

LINK-BELT CO. tells about its self-aligning roller bearings in booklet, No. 2658. Greater load capacity and simplified application are two features.

INTERNATIONAL NICKEL CO., 67 Wall St., N. Y. 5, is offering reprints of "Nickel and High-Nickel Alloys for Pressure Vessels."

MOUNT HOPE MACHINERY CO. has a new larger size Vari-Bow expander, 7-in., will handle widths up to 210-in.

SOLVAY PROCESS DIV., Allied Chemical & Dye Corp., is expanding its sales activity with new organic chemicals section, headed by ROBERT L. REYNOLDS, who moves from post of technical assistant for Special Alkalies Section. Products to be handled will be carbon tetrachloride, chloroform, methyl chloride, methylene chloride, monochlorobenzene, orthodichlorobenzene, orthosolv and paradichlorobenzene.

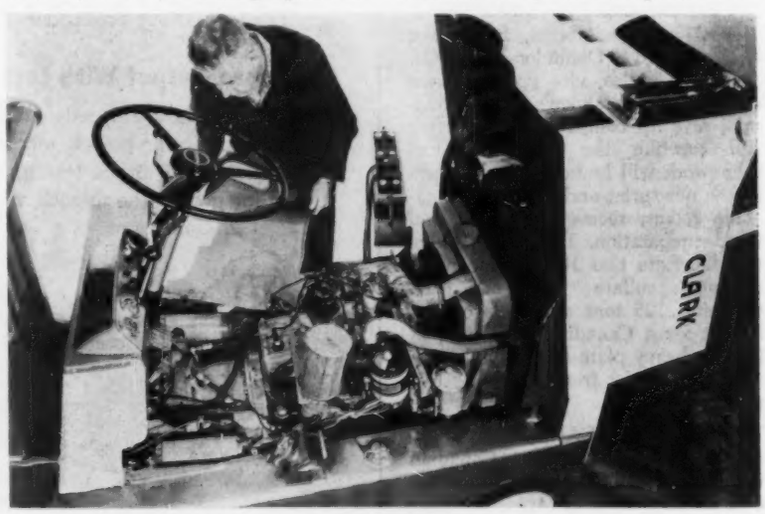
J. F. PRITCHARD & CO. has appointed Frank K. Donnelly Co. of Seattle as sales rep in the state of Washington; Ernest L. Graves Co. of Tulsa has been named sales rep in Oklahoma.

CAMERON & BARKLEY CO., Charleston, S. C., is now distributors for Famco machine tool lines; Grinnell pipe hangers and supports, and Bay State Tap & Die Co.

HERCULES POWDER CO. has named DR. RICHARD E. CHADDOCK to new post of director of development for Virginia Cellulose Dept. Succeeding Dr. Chaddock is DR. WILLIAM G. KINSINGER as manager of Hercules sales research division.

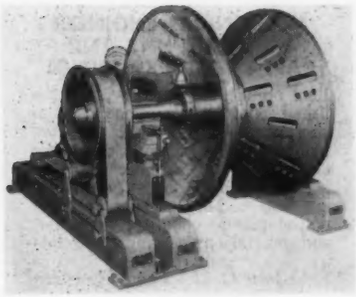
AMERICAN CYANAMID CO.'s Organic Chemicals Div., announces promotion of

When plans call for . . .
PRESSURE VESSELS
custom fabricated on the WEST COAST
YOU'LL SAVE TIME, TROUBLE AND MONEY BY CONTACTING PUGET SOUND FABRICATORS
Your "on the spot" source with over 55 years of experience in handling a wide variety of fabricating jobs involving steel plate and alloys up to 1" thickness.
MAIL PRINTS FOR PROMPT QUOTATION ON YOUR NEXT JOB
SEND FOR NEW BROCHURE
for complete information on facilities and services write for Brochure No. P-56
Craftsmen in Metals Since 1900
PS F PUGET SOUND FABRICATORS, INC.
Formerly Puget Sound Sheet Metal Works
3670 E. Marginal Way Seattle 4, Wash.



New Clarklift Truck Has Swing-Up Hood

Clark Equipment Co.'s new Clarklift line of fork-lift trucks has a spring-balanced hood that swings open 90° to completely expose engine and power train which can be removed as a unit. Other features include self-adjusting brakes, solid-tire models with drive and steer wheels of same diameter, combination lift-tilt controls on steering column, all-purpose deep-tapered forks. Maintenance features include a 4-bolt floor plate over transmission, tray mounted battery which swings away from engine, new type air cleaner with pleated paper replacement cartridges. Full details are available from the company, Battle Creek, Mich.



Compact Balancing Machine

Raydyne Corp., announces a new "Mogul" balancing machine which is said to reduce complex balancing operations to the absolute in mechanical simplicity. Pedestal type design permits Mogul units to be placed together or separated according to the length of the piece to be balanced. The resulting, almost unlimited field of balance is adaptable to the shortest rotors or the longest type of paper mill roll. The "Mogul" is easily installed in a minimum of shop space and requires practically no maintenance over an extended period. For more info write Raydyne Corp., 920 West Laurel St., Springfield, Ill.

R. L. STOUT from supervisor of office services at Bound Brook, N. J. to assistant to director of sales.

OWENS - CORNING FIBERGLAS CORP. announces a Fiberglas low pressure pipe insulation with a white universal jacket for cold, hot water and low pressure steam lines. The new product has a ½-in. thick fine fibered Fiberglas insulation and a jacket of a heavy, bleached, creped kraft paper laminated to aluminum foil.

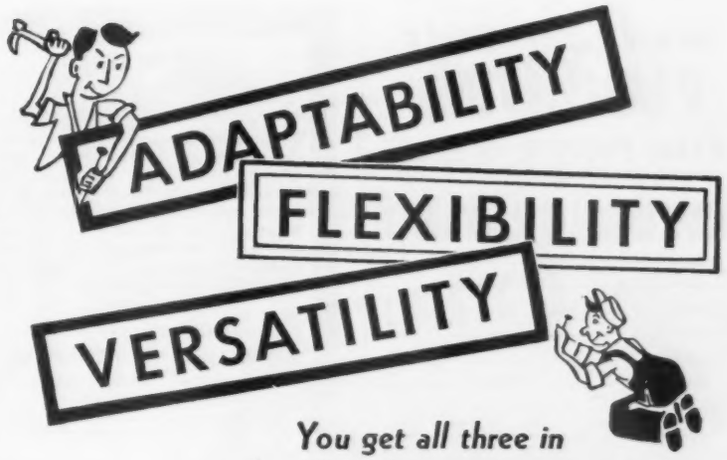
PHILADELPHIA GEAR WORKS, INC. is introducing an integrated "packaged" fluid agitator service, described in "Philadelphia Fluid Agitators," available by writing the company, Erie Ave. and G St., Philadelphia.

BARRETT DIVISION, Allied Chemical & Dye Corp. announces that JOHN C. ESHER is now assistant sales manager, chemical sales dept.

H. K. PORTER CO., INC. has elected CHARLES L. HOLBERT a vice president, according to T. M. EVANS, president.

GRAVER WATER CONDITIONING CO. has a new, comprehensive article on iron and manganese removal from water supplies. Ask for Technical Reprint T-144, from Graver at 216 West 14th St., N.Y.C. 11. Technical Reprint T-145 is on "Specifying Industrial Waste Treatment."

ALLIED CHEMICAL & DYE CORP. has consolidated its San Francisco sales offices at Russ Bldg., 235 Montgomery St., phone Yukon 2-6840.



You get all three in

WARREN

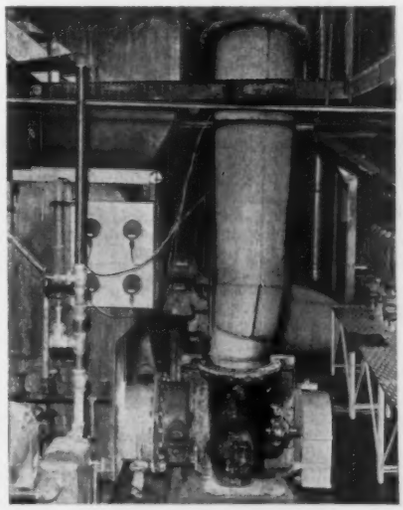
STOCK CIRCULATING PUMPS

and here is proof . . .

The Warren 18 x 24 Horizontal Propeller Circulator Pump, illustrated, was side mounted on a special bracket to provide vertical discharge rather than top horizontal.

At present it handles a capacity of 6000 GPM, at 12 foot head, 30 BHP at the pump shaft, 765 RPM pump speed, and to handle 1% stock. A 40 HP, 1150 RPM motor and V-Belt drive was chosen to allow for a future capacity of 7000 GPM, 12 foot head, 40 BHP at the pump shaft, 830 RPM pump speed. This change was to be effected by changing sheaves.

However, mill modifications will require a new capacity of 9000 GPM, 15 foot head, 57 BHP at the pump shaft. For this a 60 HP motor and a new V-Belt drive for 1000 RPM pump speed will be provided.



Photo, courtesy Escanaba Paper Company
Subsidiary of The Mead Corporation, Escanaba, Michigan

Whether it is a question of Stock Circulation, mixing, or any other Pulp or Paper Mill application, it will pay you to take advantage of Warren Pumps and Warren Engineering.

PP-34

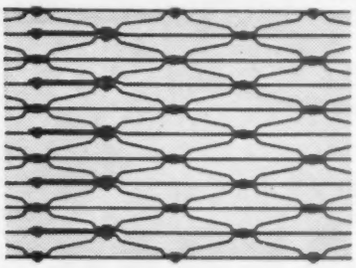
WARREN QUIMBY PUMPS

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC.

Warren, Massachusetts

MANY-PURPOSE
FLOORING
FOR PAPER MILLS
★
IRVING GRATING



In every step from log to paper you're on sure footing with IRVING open-grid steel and aluminum flooring.

IDEAL FOR

- Walkways
- Heavy-duty, cement-filled armouring
- Receiving and loading platforms
- Catwalks
- Stairways
- Mezzanines
- Flooring and platforms around machines, pipes, beaters, combiners, digesters

KNOWN FOR

- Safest walking and wheeling surface
- Strength, light weight, durability
- Self-draining, self-ventilating and fireproofing advantages
- Economy, minimum maintenance cost

PLUS

More than 50 years of engineering and manufacturing experience.

'The Pioneers of the Industry'

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Custom-Built to Your Specifications
Prompt Delivery

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

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Armco Drainage & Metal Products of Canada Ltd., P.O. Box 300, Guelph, Ontario, Canada

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$5,000 to $100,000
PRODUCTION—SALES—MANAGEMENT

We have immediate openings for qualified men in all phases of the paper industry. If you have experience; are looking for bigger responsibilities or a general management assignment, we can assist you. No retainer or placement fee to be paid unless you accept employment through us. For confidential service call, wire or write.

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PROCUREMENT... of qualified personnel FOR mills, converters and distributors.

PLACEMENT...of qualified personnel WITH mills, converters and distributors.

CONSULTATION...with top management on matters involving the application of human effort.

6 EAST MONROE STREET • CHICAGO 3, ILLINOIS
ANdover 3-1970

POSITIONS OPEN

We can place—Manager new mill, must be familiar with groundwood also newsprint mfg.; supt. wet mach. board mill; supt. waste paper mill also deinking; board mill supt.; asst. supt. large finish. dept.; asst. employment mgr.; laminating expert.

Chemists and chem engineers for mills, for demonstrating and selling; finishing foreman; time study-industrial engineers.

Mechanical and electrical engineers, designers and draftsmen; master mechanics; project engineer; maintenance foreman for converting equipment. Salesman coated fine printing papers, tags, etc.; salesman for mech. equipment for paper and pulp mills; paper salesman. Fourdrinier and Cylinder mach. tour bosses.

SEND US YOUR RESUME. Many attractive positions are open for top-notch men. No fee to be paid unless you accept employment through us. Negotiations are confidential.

Charles P. Raymond Service, Inc.
Phone: LIberty 2-6547
294 Washington St. Boston 8, Mass.

POSITION WANTED

TECHNICAL DIRECTOR—7 years experience in production and development work in the Pulp and Paper Industry. Desires change of employment. Excellent health, family man. Available on reasonable notice. Prefer Western location. Write to Box 270, PULP & PAPER, 370 Lexington Ave., New York, N.Y.

MECHANICAL ENGINEER WITH SULPHITE AND PAPER MILL EXPERIENCE

Real opportunity open with established consulting engineers. Salaried position with paid vacation, holidays and sick leave. Excellent opportunity for advancement and for interesting work with expanding firm in pulp and paper mills, power plants, chemical processes, and general engineering for industry.

John G. Hoad and Associates
8 East Michigan Avenue
Ypsilanti, Michigan

WANTED

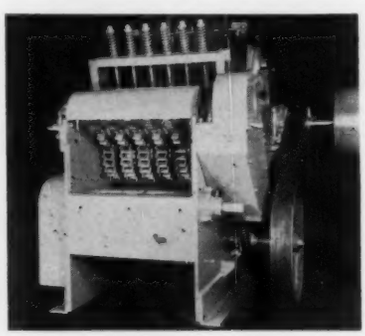
Electrical engineer to head up electrical division in design engineering department for plant layout work including automatic control for mechanization project. Experience in board plant or pulp mill helpful. Give education, experience and salary desired in first letter. Location south—city of 30,000. Excellent living conditions. Write to Box 272, PULP & PAPER, 370 Lexington Ave., New York 17, N. Y.

WANTED

ENGINEERING DRAFTSMEN—Mechanical and Electrical by large stable corporation. Good future for desirable applicants. Give references, education, experience and salary expected in first letter. Location south—City of 30,000. Excellent living conditions. Write to Box 271, PULP & PAPER, 370 Lexington Ave., New York, N.Y.

SURPLUS PAPER MILL EQUIPMENT FOR SALE

Equipment includes pumps, reducers, motors, rolls, etc. For further information contact Purchasing Department, Union Bag & Paper Corp., P. O. Box 570, Savannah, Ga.



New Refuse Chipper

Filer & Stowell Co., Milwaukee 7, Wis., announces new sawmill refuse chipper, for sawmills slabs, edgings, trim blocks and cull lumber. It differs from conventional disc chippers in that its feed and opening is designed specially for entry of sawmill waste and not solid round wood. Feed is horizontal, controlled by individually hung press rolls and synchronized feed table. Many independent fingers press infeeding stock tight against anvil, preventing ends and small pieces from turning and bobbling in front of the knives and preventing oversize chips.

You can't beat HAMILTON Felts

for easiest adjustment... reduced downtime!

Since making paper is so much more profitable for you than making felt adjustments, Hamilton Felts are *engineered* for no-sag, no-stretch *fit!* And since 1858, papermakers have found Hamilton Felts give longest high-quality performance between changeovers.

Win a New Stetson . . . Give "Ham" a New Hat!

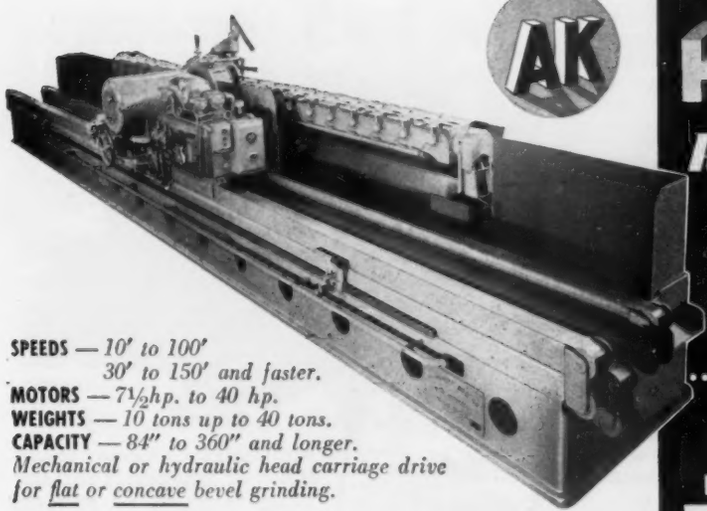
HAM FELTZ says:
"Send me your idea (a very rough sketch will do)—of the type of hat the best wet-end operators will wear this summer. If I wear it in future ads I'll send you a new Stetson."

MIAMI WOOLEN MILLS
Established 1858

Hamilton FELTS

SHULER & BENNINGHOFEN
Hamilton, Ohio

MODEL AK



FOR ACCURACY — FINEST FINISHES

HANCHETT

knife grinders

for the
PULP AND PAPER
INDUSTRIES

SPEEDS — *10′ to 100′*
30′ to 150′ and faster.
MOTORS — *7½hp. to 40 hp.*
WEIGHTS — *10 tons up to 40 tons.*
CAPACITY — *84″ to 360″ and longer.*
Mechanical or hydraulic head carriage drive for flat or concave bevel grinding.

FOR GRINDING — HOG — BARKER
PAPER TRIMMER AND DOCTOR BLADES

NEW MODEL SK-24
slitter knife grinder
FOR TOP — BOTTOM SLITTERS
CAPACITY 3″ TO 24″ DIAMETER
SEMI OR FULL AUTOMATIC
FINEST IN ACCURACY AND FINISH

Other Models.
GK — **medium heavy duty** — *capacity 32″ to 184″*
DN — **normal production** — *capacity 32″ to 108″*

HANCHETT MANUFACTURING COMPANY
World's Largest Manufacturer of Knife Grinding and Saw Sharpening Machinery
MAIN OFFICE — Big Rapids, Michigan **WEST COAST** — Portland, Oregon

WHEN YOU WANT

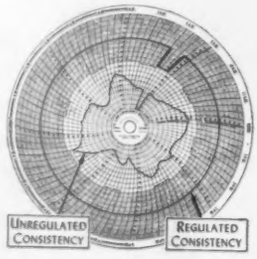
Automation.

SPECIFY DeZURIK AUTOMATIC RECORDING CONSISTENCY REGULATORS

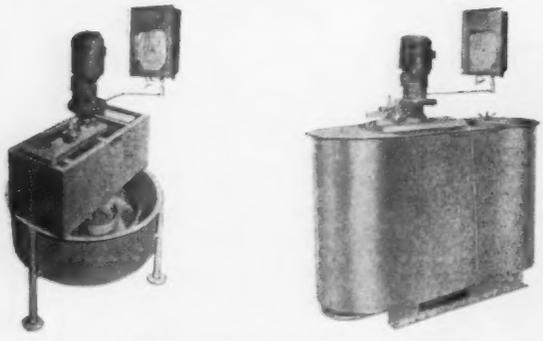
DeZurik Automatic Consistency Regulators operate *accurately* (to within plus or minus .1%), *sensitively* (instantaneous response to changes in stock consistency) and *simply* (a single knob sets regulated consistency).

24-HOUR RECORDING

The Controller-Recorder delivers a continuous 24-hour record of both incoming and outgoing consistencies. Operation is entirely automatic! Once the desired consistency is set, no further attention is required.



THREE VERSATILE TYPES



Three basic types provide the trouble-free answer to any consistency control problem: Pipe Line type used on systems under pressure; Pan type takes gravity flow from washers, deckers, save-alls, etc.; Stuff Box type installed ahead of paper or board machines, or ahead of a finishing refiner.

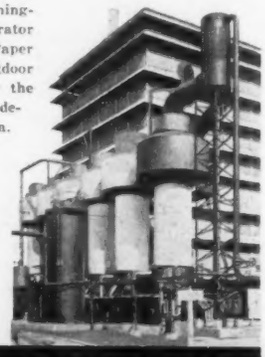
Write for details, including data on Closed Stock System which eliminates entrainment of air in stock going to a paper machine.

DeZURIK SHOWER COMPANY
SARTELL, MINNESOTA

1 lb. per hour EVAPORATION! 290,000 lbs. per hour

Take your choice! Goslin-Birmingham will design a unit to handle *any* required evaporation. Every unit, regardless of size, is designed specifically for *you* by experienced chemical engineers. No unit is too large or too small for G-B engineers.

The illustration shows a Goslin-Birmingham six-body sextuple effect evaporator of advanced design at the Halifax Paper Co., Roanoke Rapids, N. C. The outdoor installation requires only a pad for the Goslin-Birmingham self-supporting design, requiring a minimum of floor area.

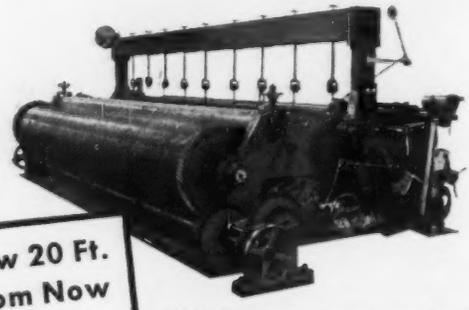


If you have an evaporation, filtration, or flaking problem, do not hesitate to contact Goslin-Birmingham. Our years of experience in many fields are available *without* charge, and at no obligation.

GB

GOSLIN-BIRMINGHAM MANUFACTURING COMPANY
BIRMINGHAM • ALABAMA

Multi-Metal Offers Full Width Alloy Covers up to 20 Feet Wide



New 20 Ft. Loom Now In Full Operation

Multi-Metal weaves various types of stainless steel and monel wires in all standard meshes commonly used by the pulp and paper industry. Prompt delivery from stock. Let us quote on your alloy wire needs.

MULTI-METAL WIRE CLOTH CO., Inc.
40 Years of Service to the Paper Industry
1344 GARRISON AVE., NEW YORK 59, N. Y.

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C.T. TAKAHASHI & CO.

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All Grades of Pulp

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Preliminary Reports, Layouts, Estimates and Designs for Kraft, Sulfite, Dissolving and Semi-Chemical Pulp Mills, Paper and Board Mills.

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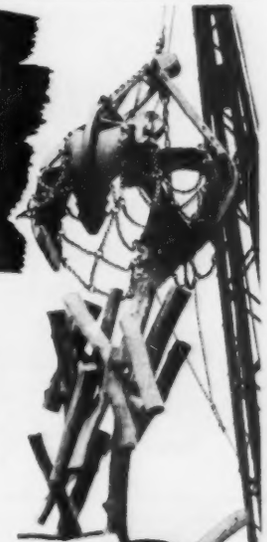
The Swing to OWENS increases



Meeting every test, as never before attained, Owen Grapples are being installed by pulpwood handlers in ever increasing numbers.

The factors:

Great gripping ability and load capacity—

Speed and ease of operation—

Low Maintenance cost.

The OWEN Pulpwood GRAPPLE

THE OWEN BUCKET CO.

BREAKWATER AVE., CLEVELAND 2, OHIO

BRANCHES: New York • Philadelphia • Chicago
Berkeley, Calif. • Ft. Lauderdale, Fla.

COAST TO COAST

MAJOR MILLS CUT PIPELINE COSTS with SPEEDLINE FITTINGS

★ Speedline Paper Mill installation!

From Maine to Florida . . . Massachusetts to Washington . . . plant engineers for leading pulp and paper mills have discovered the new standard in pipeline economy possible only with light-wall stainless steel pipe and SPEEDLINE corrosion-resistant fittings. And here's why—

Speedline

Schedule 5 or 10 pipe with SPEEDLINE Fittings provides safe, effective pipe wall for as little as half the cost of schedule 40 pipe and conventional screwed fittings!

Speedline

The exclusive "tangential feature" (extra length section) on all SPEEDLINE Formed Fittings speeds installation . . . permits easier flanging or welding of free-flowing butt end joint—cuts labor costs to a minimum!

Speedline

SPEEDLINE Fittings eliminate restricted flow areas and crevices common to screwed joints.

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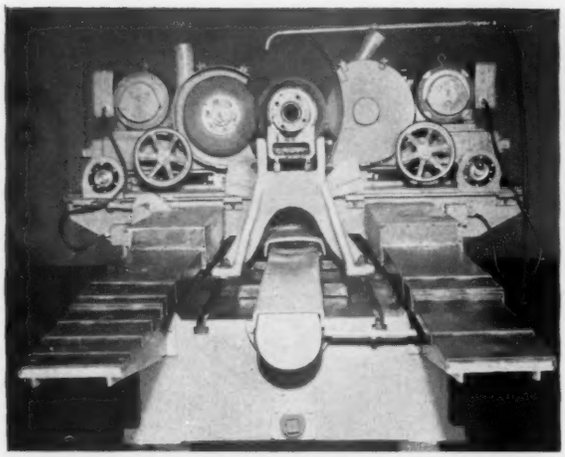

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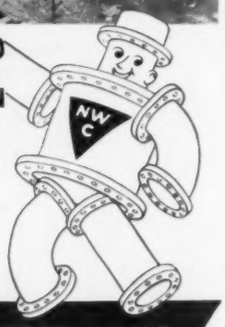

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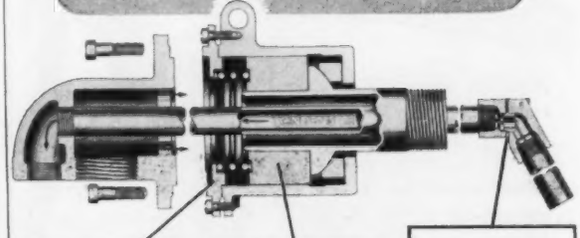

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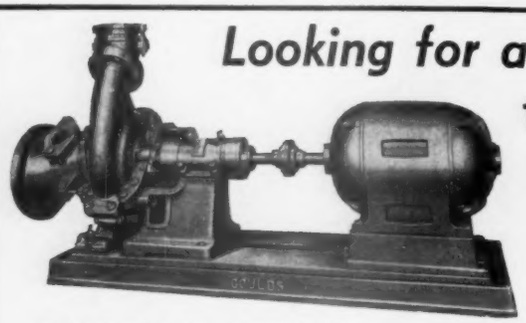

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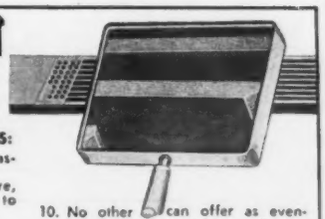

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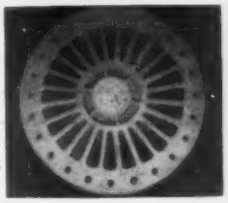

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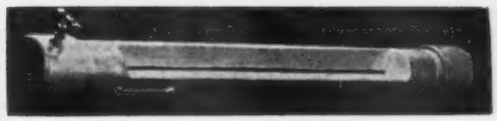

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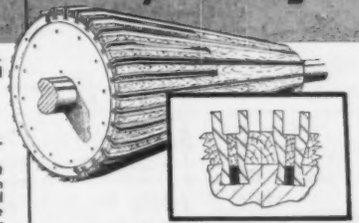

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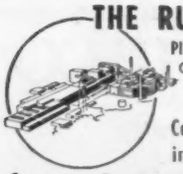

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The LAST WORD PULP & PAPER EDITORS' PAGE

Biennial Business Census is Needed

Last month, PULP & PAPER editorially recommended that the U. S. Forest Service should prepare more frequent, continuing timber appraisals, instead of every 10 or 8 years, so that forest industries can make better plans for the immediate years ahead. What value is a USFS forecast for the year 2,000? And how little chance there is for it to be right!

Here's another proposal that would fit hand-in-glove with more frequent, more accurate U. S. timber appraisals. It was made by William K. Beard, Jr., president of Associated Business Publications, Inc. PULP & PAPER and other Miller Freeman industrial publications are members of ABP.

"America's ability to attain in the next decade the vast economic growth predicted by government and private economists can be enhanced materially if the government will provide business with a biennial Census of Production and Distribution," he told a Portland, Ore., meeting of industrial advertisers.

"Industry's perfection of mass production techniques needs to be matched by similar perfection of mass marketing techniques, said Mr. Beard. "To accomplish this, business must have at its disposal frequent and up-to-date marketing information as a guide to long-range planning. Most such data can come only from the Census Bureau of the U. S. Dept. of Commerce because it alone has the legal authority to command the cooperation of all business firms in reporting necessary operating information."

At the present time, the development of new concepts and new methods of distribution are being hampered by the lateness of reporting of such information. The national Census of Business is now scheduled for every 5 or 6 years, and the latest complete data of this kind reflects conditions of 8 years ago. A later census was made in 1954 covering both manufacturing and distributing fields, but complete reports have not yet been made available and the 1954 statistics will be at least a year and a half old on publication. What's worse, business would not be provided with more up-to-date information until 1961 or 1962.

Both forest surveys and business censuses will require that Congress provide sufficient funds.

Newspapers Have Tiger by Tail

Many American newspapers can learn a lesson on liberty from the Quebec papers that refuse Premier Duplessis' help in getting cheaper newsprint.

Slightly watered down, M. Duplessis' legislation designed to peg newsprint prices at the rate effective last September for Quebec papers has become law. A clause has been inserted making application of the law optional on the part of the newspapers which it sought to "protect." Several larger papers have announced they will continue to deal with their newsprint suppliers along traditional lines.

There has been widespread criticism of the law. Stuart Keate, publisher of the Victoria (B.C.) Times, declared that Quebec newspapers have "demeaned their country in the eyes of democratic newspapermen throughout the world. For the first time in man's recorded history freedom has become a measureable commodity. You can buy it for $10 a ton."

The Montreal Star, biggest English-language newspaper in Quebec, scorned price protection offered by M. Duplessis.

"The Montreal Star has enjoyed normal relations with its suppliers during its 86 years of life, and it hopes to maintain them unimpaired in the future. Its wants no cloud, not even the suspicion of a cloud, upon its liberty," it said.

The Herald (Montreal): "We will not place ourselves under newsprint control. As believers in and defenders of the free competitive system, we feel competent to continue to deal with suppliers ourselves. It's a process that has been going on for nearly 145 years, and we're not inclined to change such a well established way of doing business."

Vancouver Sun: "M. Duplessis, in his proposal to place newsprint mills under control, is putting into his own hands a tap capable of shutting off, if he so chooses, nearly half the flow of the most important single item in the trade of the whole nation. For what purpose? Simply to punish an industry for refusing to accede to his request that it exempt the newspapers of his own province from a price increase.

Winnipeg Tribune: "Quebec newspapers are finding they have a tiger by the tail. To their discredit the great majority actively or tacitly support M. Duplessis in his threat to coerce the paper companies. Here is a classic example of being in favor of free enterprise and competition—for the other fellow, but calling on government to pass a law to protect the individual from the effects of competition. The tiger's stripes have now become plainly visible. The legislation gives M. Duplessis effective control over Quebec newspapers."

Dying Forests on U. S. Lands

Salvage of many millions of acres of dead or dying trees in the United States is wholly dependent on transportation availability, which in turn means roads. Until forest road systems open the woods to vehicular travel the billions of feet of timber dying annually in national parks and national forests will contribute little more than the propagation of more forest pests and additional fire hazards.

This federally-owned timber could add considerably to the nation's wood supply without any additional depletion. In fact, removal of dead and weakened trees improves the forest by reducing hazards and providing better growth conditions for remaining trees.

There is a critical need for forest roads in USFS lands for salvaging timber. Waste and destruction are aided and abetted by administrators of public timber who:

(1) Insist on unnecessarily high logging road specifications,

(2) Refuse to give prospective purchasers a volume guarantee,

(3) Fail to provide a two-price system—one for dead timber and another for live,

(4) Price salvage sales so high they get no bids,

(5) Delay sale preparation so long that destructive insects seriously threaten surrounding private and government-owned timber areas,

(6) Fail to aggressively market mature and over-mature timber which is so susceptible to insect attack, and

(7) Set such a high minimum price that utilization suffers because only the higher grade logs can be removed profitably.

● Early 18th Century Chinese Plate with Yang-Yin symbol in the center. From the collection of Captain and Mrs. H. F. D. Davis, now owned by Mrs. H. N. Hill.

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